

THE IRON AGE

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Corporation Abandons Pittsburgh Plus

Assents to Order of Federal Trade Commission and Includes
National Tube Co.—Bethlehem Steel Co. Declares
Its Policy—New Prices on Wire Products Announced

THE decision of the United States Steel Corporation not to oppose the cease and desist order of the Federal Trade Commission in the Pittsburgh plus case and to comply with the order "in so far as it is practicable to do so" did not come as a surprise, because it has been evident for some time that the policy of the officers of the corporation would find expression again, as it has frequently in the many years of Judge Gary's chairmanship, in going beyond the limit of what might be legally demanded by the public.

One who has closely followed the fight against Pittsburgh plus from its inception said to THE IRON AGE: "It is incomprehensible that the decision of the Steel

Corporation not to carry the case to the courts is based on legal grounds. The Steel Corporation's statement of Sept. 17 plainly says that 'the respondents do not admit the validity of the order or the jurisdiction of the commission,' and there is not a particle of doubt in my mind that had the case been appealed to the Supreme Court the Steel Corporation would have won a decisive victory. There has been, however, tremendous agitation against Pittsburgh plus and by misrepresentation and otherwise thousands of people, including many customers of the Steel Corporation, especially in the Northwestern part of the country, have been led to believe that a great wrong was being per-

Acceptance of Order by United States Steel Corporation

The Federal Trade Commission on Sept. 17 published the following, which it calls, "report of the United States Steel Corporation, et al., in response to the commission's order in the Pittsburgh Plus case":

UNITED STATES OF AMERICA BEFORE THE FEDERAL TRADE COMMISSION

Federal Trade Commission vs. United States Steel Corporation, American Bridge Co., American Sheet & Tin Plate Co., Carnegie Steel Co., National Tube Co., American Steel & Wire Co., Illinois Steel Co., Minnesota Steel Co., Clairton Steel Co., Union Steel Co., The Lorain Steel Co. and Tennessee Coal, Iron & Railroad Co.

Pursuant to the order made by the Federal Trade Commission in the above entitled cause, dated July 21, 1924, the respondents, United States Steel Corporation, American Bridge Co., American Sheet & Tin Plate Co., Carnegie Steel Co., National Tube Co., American Steel & Wire Co., Illinois Steel Co., Minnesota Steel Co. and Tennessee Coal, Iron & Railroad Co., report as follows:

1. Respondents, without admitting the validity of said order or the jurisdiction of the commission to make the same, have determined to conform thereto, and will hereafter conform thereto, in the sale of their various products, in so far as it is practicable to do so.

2. Respondents have abandoned the Pittsburgh plus system, as defined in said order, throughout their various organizations and will not hereafter make use of the same.

3. Respondents will not quote for sale or sell their rolled steel products upon any other basing point than that where the products are manufactured or from which they are shipped.

4. Sales from manufacturing plants, fabricating plants and warehouses will be made f.o.b. plant or warehouse, or at delivered prices, as occasion may offer. In all cases of sales at delivered prices, the contract of sale or the invoice will clearly and distinctly indicate how much is charged for the steel products sold f.o.b. the producing or shipping point and how much is charged for the actual transportation of such products, if any, from such producing or shipping point to destination.

5. All f.o.b. selling prices, whether at the mills, warehouses or fabricating plants, and all delivered prices, will be non-discriminatory within the meaning of the second section of the Clayton act, but will be subject to the variations permitted by said act.

Dated, Sept. 16, 1924.

Signed by United States Steel Corporation by J. A. Farrell, President; American Bridge Co. by Joshua A. Hatfield, Vice-President; American Sheet & Tin Plate Co. by E. W. Pargny, President; Carnegie Steel Co. by H. D. Williams, President; National Tube Co., by William B. Schiller, President; American Steel & Wire Co. by William P. Palmer, President; Illinois Steel Co. by E. J. Buffington, President; Minnesota Steel Co. by S. B. Sheldon, Vice-President, and Tennessee Coal, Iron & Railroad Co. by George G. Crawford, President.

petrated by basing prices on Pittsburgh. Hence, rather than take an unpopular course, it has been decided not to appeal to the courts."

New Plan May Be Unpopular

The view expressed above is the one entertained by many observers, but there is much doubt as to how the plan of quoting mill prices will be worked out and as to whether it will be as popular as the leading opponents of Pittsburgh plus expect it to be. The statement, which has been widely published, that Pittsburgh plus has cost the farmers of 11 States about \$30,000,000 annually was admitted as evidence in the case, it being described as an estimate of the American Farm Bureau Federation. Men connected with the steel trade know that this estimate is a gross exaggeration and are convinced that in the future, as in the past, while consumers get cheap steel when consumption falls well below capacity, they will pay high prices, perhaps higher than ever under Pittsburgh basing, in times of great activity, when there is a scramble for steel.

However, the wide publication of the statement undoubtedly has aroused hope in the minds of countless farmers that the abandoning of Pittsburgh plus will mean a decided reduction in prices. If the reductions are not forthcoming, there may be keen disappointment. No one in the trade believes that at this time, when general market conditions are gradually improving, the adoption of the new plan of quoting will cause any important reduction in prices. Hence the effect upon those who have been clamoring for a change is awaited with interest. Some salesmen of long experience predict that the abandoning of the Pittsburgh basing method will cause a great deal of confusion among buyers who have long been in the habit of buying on a Pittsburgh basis and have in mind Pittsburgh freight rates. Such buyers will find it more difficult than heretofore to calculate how much their competitors are paying for their steel.

Carrying Out the New Methods

As to the methods by which the new plan is to be carried out, it is impossible to speak definitely. In the case of some products and some companies, the change will be rather easy. For example, the Illinois Steel Co. months ago virtually abandoned the Pittsburgh plus method of selling, and little if any change will be necessary in its policies. On the other hand, in selling sheets and wire products, it is predicted that many difficult problems will be encountered. This is particularly true of the American Steel & Wire Co., which has numerous plants, a vast variety of products and complicated price schedules. The selling of wire has been worked out through many years by the American Steel & Wire Co. and its predecessors and competitors. It is not thought that it will be possible to quote the same delivered price regardless of the mills at which the products are made, and if different prices are quoted, it may be difficult to satisfy customers. Similar conditions, although not so complicated, apply to the sheet business.

Cost of Abandoning Pittsburgh Plus

As to what will be the financial cost to the Steel Corporation resulting from the abandonment of Pittsburgh plus, it is impossible to make anything approaching an accurate estimate. It is the opinion of some persons connected with the steel trade that in years of great prosperity the Steel Corporation subsidiaries under the Pittsburgh plus plan have been able to obtain higher prices than they could otherwise have secured, but whenever keen competition has developed the ignoring of Pittsburgh plus has resulted in as low prices being named as in all probability will be made at any time under the new plan. On the other hand, if there has

been a stabilizing effect of a single basing point at times when the trend of the market has not been readily determinable, such stabilization has operated also to prevent inordinately high prices when supply has proved quite inadequate to meet demand. Doubtless experience over an extended period will be required to show the real working out of mill basing.

In the carrying out of the cease and desist order of the Federal Trade Commission much depends upon the interpretation of the word "practicable," which is defined by the Standard Dictionary as "that which can be put into practice; possible of execution or performance; feasible." Without intending to violate or evade the order of the commission, the sellers may find that it is necessary for them to exercise considerable discretion. The order itself gives much latitude, for it distinctly permits "discrimination in price between purchasers on account of differences in the grade, quality or quantity of the commodities sold" and the order also permits "due allowances for difference in the cost of selling or transportation, or discrimination in price in the same or different commodities made in good faith to meet competition."

Although a large percentage of the output of the National Tube Co. is not manufactured in Pittsburgh, its products are not included in the order, but the announcement of the Steel Corporation is signed by that company, and it is officially stated that the Steel Corporation intends to go even further than has been ordered by the commission.

How Far Will Regulation Extend?

The question is likely to be asked in connection with the ability of the Federal Trade Commission to bring about the abolition of the Pittsburgh plus custom, "Will this success in regulating business or interfering with its policies result in agitation for further control or regulation of business?" It was shown in the course of the hearing of the case that prices of other products than iron and steel were quoted in ways similar to Pittsburgh plus and it will be interesting to see whether the Federal Trade Commission will try to have the cease and desist order issued against the Steel Corporation subsidiaries applied in other lines of trade. President Buffington of the Illinois Steel Co., in discussing the Pittsburgh basing plan in THE IRON AGE of Dec. 14, 1922, said:

In substance, the prices of steel in the regard we are considering are not different from the prices of grain. There is always a market price for grain in Chicago. Vast quantities of grain come into Chicago from the fields where produced, and are then distributed from Chicago to points of consumption. The great mass of wheat is produced west of Chicago and consumed east of Chicago.

The price paid by grain dealers at the various points west of Chicago, where wheat is produced, is day by day the Chicago price less the freight from the point of purchase to Chicago. The price of wheat east of Chicago is the Chicago price plus the freight from Chicago to the given point. In neither case does the cost of producing the wheat west of Chicago or the cost of producing the wheat east of Chicago fix the price. The market price at Chicago fixes the price in both localities.

The price of sugar furnishes another illustration of the subject. The United States does not produce sufficient sugar to supply its needs. In consequence, large quantities of sugar are bought in Cuba. The prices for sugar which rule in different parts of the United States bear a direct relation to the prices of sugar at seaboard points, such as New York, Baltimore, Galveston and elsewhere.

It may be laid down as a general rule that the district in which the greatest quantity of the products named or other products similarly affected by market conditions are produced or marketed establishes the market prices for such products and become a basing point for the prices of such products in other districts.

Will the Federal Trade Commission try to regulate the selling of grain, of sugar and many other products? Will it extend its efforts to the general fixing of prices? If radicals gain in power at Washington, how far will

The Cease and Desist Order

The text of the order of July 21, 1924, requires that the corporation and subsidiaries cease and desist:

1. From quoting for sale or selling in the course of interstate commerce their rolled steel products known as plates, bars, structural shapes, sheets, tin plates, wire and wire products at Pittsburgh plus prices.
2. From quoting for sale or selling in the course of interstate commerce their said rolled steel products upon any other basing point than that where the products are manufactured or from which they are shipped.
3. From selling or contracting for the sale of or invoicing such steel products in the course of interstate commerce without clearly and distinctly indicating in such sales, or upon such contracts or invoices, how much is charged for such steel products f.o.b. the producing or shipping point, and how much is charged for the actual transportation of said products if any, from such producing or shipping point to destination.
4. From discriminating in the course of interstate commerce, either directly, or indirectly, in price between different purchasers of their rolled steel products known as plates, bars, structural shapes, sheets, tin plate, wire and wire products sold for use, consumption or resale within the United States or any Territory thereof or the District of Columbia or any insular possession or other place under the jurisdiction of the

United States, where the effect of such discrimination may be to substantially lessen competition in any line of interstate commerce; including competition among the steel producers, or steel users, or both; provided, however, that nothing herein contained shall prevent discrimination in price between purchasers of said products on account of differences in the grade, quality or quantity of the commodity sold, or that makes only due allowance for difference in the cost of selling or transportation, or discrimination in price in the same or different communities made in good faith to meet competition. The use by respondents in the course of such interstate commerce of the system of Pittsburgh plus prices for their said steel products, manufactured at and shipped from points outside of Pittsburgh— which prices are their f.o.b. Pittsburgh prices plus amounts equivalent to what the railroad freight charges on such products would be from Pittsburgh to each different destination if such products were actually shipped from Pittsburgh—shall be deemed to constitute a violation of this order. The use by respondents in the course of such interstate commerce of any system similar to that of the Pittsburgh plus system shall likewise be deemed to constitute a violation of this order. The practice by respondents of selling or contracting for the sale of said products in the course of interstate commerce upon any other basing point than that where the products are manufactured or from which they are shipped, shall be deemed to constitute a violation of this order.

business regulation be extended? These are some of the questions which are being considered by thoughtful men at the present time.

Market Reports of The Iron Age

The possible bearing of the abolition of Pittsburgh plus on market reporting has received and will continue to receive most careful consideration by THE IRON AGE. As to our "Comparison of Prices" table, which is used as a basis for contracts amounting to many millions of

dollars, THE IRON AGE does not see any reason at the present time for many changes in its method of quoting. In this table a number of products have long been quoted at Philadelphia, Chicago and New York, in addition to the Pittsburgh quotations. This policy will be continued. Experience may show that it will be desirable to quote some additional products at other centers than Pittsburgh. In this respect, as in all others, the earnest endeavor of THE IRON AGE will be to serve both buyers and sellers alike.

G. S.

Important Results Expected by Federal Trade Commission

**Lower Prices Predicted by Opponents of Pittsburgh Plus—View Not Shared by the Trade—
Counsel Lindabury Says All Subsidiaries Will Conform**

WASHINGTON, Sept. 23.—Manifestly pleased with the answer of the United States Steel Corporation complying with its cease and desist order to abandon the practice of quoting prices of steel at any basing point other than where it is produced or from which it is shipped, the Federal Trade Commission is confident that its victory in the Pittsburgh plus case will have a far-reaching effect. Whatever its justification, the belief exists at the commission that the response of the Steel Corporation, received here last Wednesday, means establishment of free competition in the iron and steel industry and that it will now become decentralized and each center be given its natural share of business and consumers benefited by lower prices. To the mind of the commission, the Pittsburgh plus method of selling steel restrained growth of producing sections outside of the Pittsburgh area and that with prices fixed on a f.o.b. mill basis, or on a delivered price basis, with invoices showing the freight rate from the mill of production, these centers will expand and markets of the Pittsburgh area at the same time will be more restricted.

As the commission and those representing it or opposing the Pittsburgh base see it, the iron and steel industry will find its markets broken up into zones whose extent will be governed by freight rates. There are those presenting this view who are convinced that

the Chicago district especially will benefit from the abolishment of the Pittsburgh base and will develop markedly with a wide area of markets throughout the Middle West and Far West. Fabricators in these sections, they contend, have now been put on a basis of fair competition with those in the Pittsburgh and surrounding territory. Implement manufacturers will be able to purchase steel more cheaply, as will other consumers, in the estimation of those who see benefits arising from the naming of prices on a f.o.b. mill basis or its equivalent. Moreover, they do not hesitate to say that the ultimate consumer, the farmer, the builder, and all others using steel in any form will get his remanufactured product at a lower price. They insist this will be inevitable by the law of competition.

Pittsburgh Plus Ignored at Times

The picture is a rosy one which evidently is not shared by the iron and steel trade, but whatever the merits of the case, it is an interesting one and the outcome will be eagerly watched not only by the trade and steel consumers, as well as the commission, but by the entire industrial and consuming groups in all lines. To many in the steel trade the Steel Corporation order only means that it has officially gone on record to do what the trade always has had to do to a large extent

by the law of economics, because it has been able to quote Pittsburgh plus only theoretically in times of dull business, such as existed both when the order was issued and the answer received. The difference, it is contended, is principally in form and not in substance. This is a view, however, which is sharply challenged at the commission offices.

The commission was gratified by not only the affirmative nature of the reply of compliance by the Steel Corporation but also by the evident sincerity of the Steel Corporation in determining to carry out scrupulously the terms of the order. The good intention of the Steel Corporation, it is argued, is shown throughout the brief but plain answer and is given further emphasis by reason of the fact that the Steel Corporation as a matter of fact went even further than it was required to do when it included the National Tube Co. as one of the responding subsidiaries. The commission had

ing of the second section of the Clayton act, but will be subject to the variations permitted by said act." With regard to the first phrase, it is the view at the commission that the Steel Corporation in adjusting itself to the new methods of quoting might not at first find it practicable to carry out the order to a nicety. But it is believed that it will be obeyed entirely in spirit. Non-discriminatory prices subject to variations in the Clayton act, the second point raised, it is said, will give the Steel Corporation latitude, if it desires, in quoting differing prices at mills in order to meet competition in good faith, but the commission expresses confidence that in the end there will have to be by reason of competitive conditions, the same price on a given product from an identical mill to all consumers supplied by that mill. The idea of varying f.o.b. mill prices at a given mill on the same product, it is contended, is not sound, though the trade does not accept

History of Pittsburgh Plus Controversy in Brief

Aug. 1, 1919.—Following agitation for 10 years from various consuming sources, the Western Association of Rolled Steel Consumers filed application with the Federal Trade Commission for complaint against the United States Steel Corporation, the Interstate Iron & Steel Co., the Steel & Tube Co. of America, and the Inland Steel Co., the three independent companies being in the Chicago district, because of the practice of quoting prices of steel on a Pittsburgh basis. Subsequently other consuming organizations took similar action.

Dec. 2, 1919.—Commission holds preliminary hearing in Washington.

July 24, 1920.—Application for complaint denied, Messrs. Murdock, Colver and Gaskill voting against its issuance, with Messrs. Thompson and Pollard voting for complaint.

Aug. 1, 1920.—Appearing for Western Association, H. G. Pickering asks for rehearing.

Sept. 20, 1920.—Rehearing granted, those voting favorably being Messrs. Thompson, Colver and Pollard, while those opposed were Messrs. Murdock and Gaskill.

Nov. 15-17, 1920.—Rehearing held.

Aug. 30, 1921.—Eliminating independents from case, the commission issues complaint against the Steel Corporation, charging that the Pittsburgh base practice constitutes unfair

methods of competition within the meaning of Sec. 5 of the Federal Trade Commission act and price discrimination within the meaning of Sec. 2 of the Clayton anti-trust act. Those voting for the complaint were Messrs. Thompson, Pollard and Nugent, and those opposed were Messrs. Gaskill and Murdock.

Jan. 30, 1922.—Hearings begun at Milwaukee.

Mar. 1-Nov. 1, 1922.—Hearings at various cities during which direct evidence offered by commission is completed.

Jan. 19-Dec. 10, 1923.—Direct evidence of the Steel Corporation presented at various points throughout country.

Dec. 15, 1923.—Commission completes its rebuttal.

Mar. 7, 1924.—Sur-rebuttal of the Steel Corporation and final evidence completed before Examiner J. W. Bennett.

Mar. 29, 1924.—Report of Examiner, unfavorable to the Steel Corporation, is issued.

June 24, 1924.—Final arguments completed before commission after filing of briefs in which Middle Western States opposed Pittsburgh base as "amicus curiae" of commission.

July 2, 1924.—Cease and desist order issued against Steel Corporation, those voting for the order being Chairman Thompson and Commissioners Van Fleet, Nugent and Hunt. Commissioner Gaskill held that the commission was without authority in the case.

Sept. 17, 1924.—Commission receives answer of the Steel Corporation announcing its compliance with the order.

dismissed the complaint as it related to this company, the Lorain Steel Co., the Clairton Steel Co., and the Union Steel Co., the latter two being really identities in names only but actually parts of other producing units.

Mr. Lindabury's Statement

In sending the answer to the commission under date of Sept. 16, General Counsel Richard V. Lindabury addressed a note to the commission, saying that the National Tube Co. had been included in connection with compliance with the order because it is proposed that all subsidiaries adhere to the same practice.

There are two points in the answer which have aroused considerable speculation as to what, if any, significance they have, but the commission itself says its does not attach any particular meaning of importance to them. One of these points consists of the phrase where the Steel Corporation says it will conform to the order "in so far as it is practicable to do so," and the other is the statement in the answer that all prices "will be non-discriminatory within the mean-

this view. The commission is of the opinion that such a practice would be done away with by bringing about protest from the consumer paying the highest f.o.b. mill price. This, however, it has been pointed out, does not mean that there will not be different prices on similar products at mills of any concern located in different sections. The points nevertheless are looked to by some as giving promise of further differences between the trade and the commission.

Present Attitude of Commission

But the commission is content to let the matter work out itself for the present. It was stated that only in the event it was found that competition is "substantially lessened" by failure to follow the intent of the order will it interfere. It is the purpose of the commission not to supervise operation of the order. Consumers are expected to see that this is done.

(Continued on page 767)

Sweden's Largest Industrial Company

World's Oldest Enterprise Was Organized in Thirteenth Century
and Includes a Dozen of the Leading Industries of Sweden
—Extent of Company's Activities and Welfare Work

BY A. BOGENHOLM SLOANE

STORA KOPPARBERGS BERGSLAGS AKTIEBOLAG (Big Copper Mountain's Mining Co.), abbreviated "Bergslaget," dating back to the thirteenth century, may claim to be the oldest industrial enterprise not only in Sweden but even in the whole world. The first object of its activity was the old copper mine at Falun, famous in the history of Sweden. Worked now for 700 years, this mine has for centuries played an exceptionally important part in the economic life of the country. Its most prosperous period was in the seventeenth century, when the company was the greatest copper producer in the world. After that time, however, its yield of copper gradually declined, although later on science and technics made it possible again to utilize the products of the mine, especially the pyrites, upon which an extensive chemical industry is now based, making the Falun Mine & Copper Works

an important part of the concern. Gradually interest was transferred to the iron and timber industries, with which the company has always been in contact, owing to the need of iron and timber at the mine.

The company owns a large number of iron mines in Central Sweden. It possesses, for instance, half of the Grängesbergs fields, a considerable part of the Blötberget mines, and about 30 per cent of the famous Dannemora mines. The ore is mainly used for the company's own works, but is to a certain extent also exported, and this export is to be increased considerably. Ores of many analyses are delivered. The ore from Dannemora is not exported, but kept for the Söderfors Steel Works, for the manufacture of high-quality steels.

The company constructed its first iron works at Svartnäs in 1735, and this was followed in due course

IN the Museum at Falun Are Displayed the Industries of the Stora Kopparbergs Bergslags Aktiebolag. The exhibits are visited annually by people from various parts of the world



AT Top Is an Old Street of Employees' Houses at the Iron Works of Söderfors



AT Right Is a Group of Laborers' Homes at the Iron Works of Bergslagsbyn



by many others. In 1873 this industry was concentrated at Domnarvet, near Falun, and the company closed down most of its smaller works. In the succeeding years the company expanded and now it operates the following seven iron and steel works: Söderfors Steel Works, Gysinge Steel Works, Domnarvet Steel Works, Elvkarleö Factories, Korså Iron Works, Strömsberg Iron Works, Ullfors Iron Works, each of which has its own specialties.

The Söderfors Steel Works produces the "Rekord Extra" and the "Rekord Superb" high-grade steels, Dannemora tool steels, hollow and solid drill steel, file steel, spring steel, magnet steel, anvils, vises and steel castings, etc. The Gysinge Steel Works manufactures electric tool steels. The Domnarvet Steel Works is the largest manufacturer in Scandinavia of open-hearth and Bessemer steel, steel castings, etc. Springs for locomotives and railroad cars, for automobiles and carriages, all kinds of spiral springs, teeth for rakes, harrows and cultivators, plough shares, and complete magnets are among the specialties produced at the Elvkarleö Factories. The Korså Iron Works makes a specialty of hammered Lancashire iron, blooms and bar ends, while Strömsberg Iron Works confines itself to hammered Lancashire iron exclusively, and the Ullfors Iron Works to the production of hammered Walloon iron.

Ownership of Ore Mines

Iron and steel manufacture, like the whole production of the company, is based on the solid foundation of its own supply of raw materials, notably ores. The iron ore resources are so extensive that they will not only cover the requirements of the company's iron works for an indefinite time, but they also leave large surplus quantities for export. The ores vary in analysis from highly phosphoric to those with a minimum phosphorus content. The Vintjern mines, the first field of iron ore acquired by the company, contain 50.4 to 65.9 per cent metallic iron, and those of Dannemora 50 to 58 per cent iron, up to 4 per cent manganese and 0.002 to 0.003 per cent phosphorus. The bulk of the Dannemora ores have an excess of lime.

Among the ores with low phosphorus content are also those from the Langgruvan mine in the Andersbenning fields, and the lump ore and concentrates from the Stripa mines. The Stripa ore is the quartz-

banded hematite type; it is delivered from the mine as lump ore, and as magnetic and hematite concentrates. The bulk of the output from the Bispberg, Johannisberg and Gröndal mines, in the Klackberg ore field, contains about 50 per cent iron, 4 per cent manganese, 0.002 to 0.003 per cent phosphorus and is calcareous. The Grängesberg ores are partly high phosphoric, with 60 per cent iron and 1 per cent phosphorus, and partly of a medium quality, with 58 per cent iron and 0.1 to 0.3 per cent phosphorus. All these ores are very low in sulphur content.

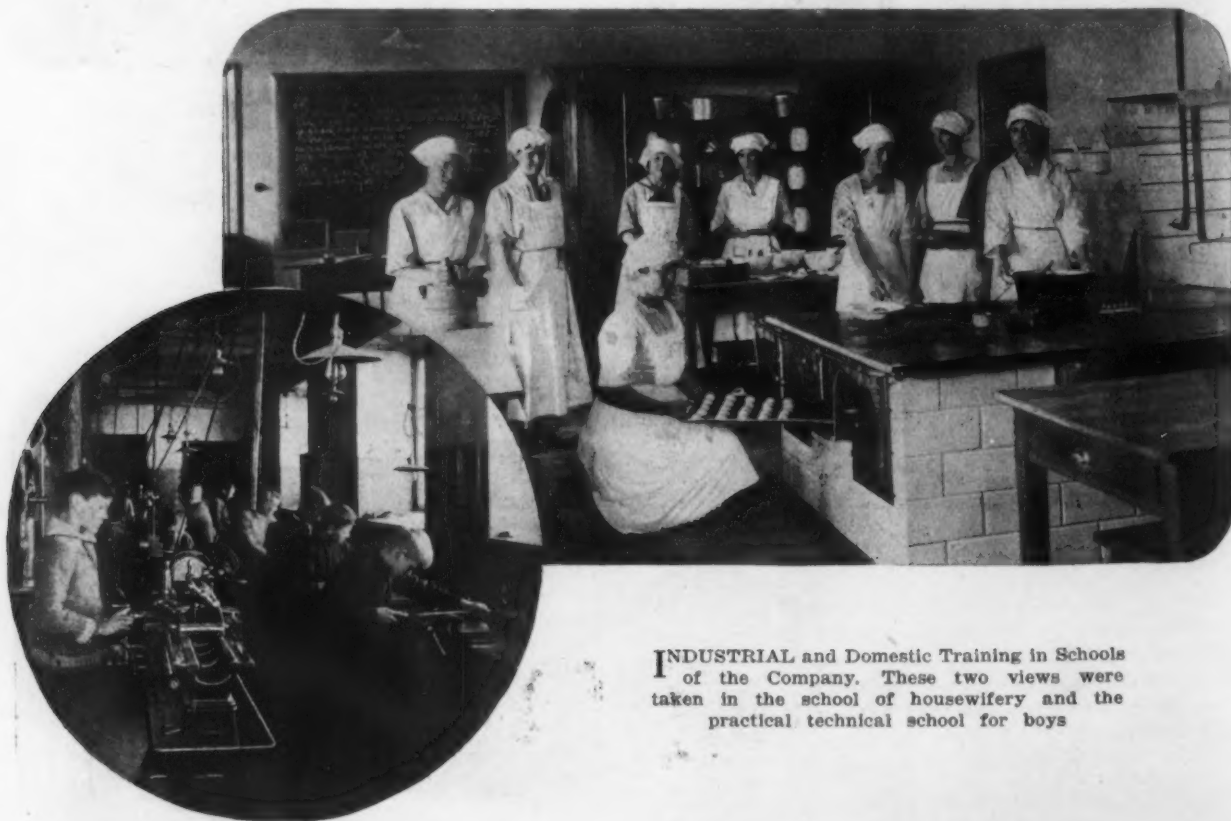
Timber Industry Dates from Eighteenth Century

First taken up at Domnarvet in 1789, the timber industry shows the same development as the iron industry. Toward the end of the nineteenth century the company had a considerable number of saw mills in the interior, which naturally proved rather uneconomical, especially when exports began to expand. Consequently the company in 1885 acquired the saw mills at Skutskar on the Baltic Coast, where the manufacture of wood goods for export is concentrated. This plant is now one of the leading ones of its kind in Sweden.

In addition to the Skutskar saw mills, and to replace the saw mill at Domnarvet, which then was closed down, a new saw mill was erected at Bysjön in 1921-22. It produces partly for export, and is combined with charcoal kilns and chemical factories.

To utilize the smaller sizes of logs floated down to the saw mill from the company's own forests, comprising tracts aggregating about 850,000 acres, and the refuse and chips obtained, the company in 1894 established the Skutskar Sulphate Pulp Mill and took up the exportation of pulp. In 1900 a sulphite pulp mill also was erected at the same place. These mills have capacity of 18,000 tons strong and bleachable sulphate pulp, air-dry weight, and 24,000 tons strong, unbleachable sulphite pulp, air-dry weight.

For complete utilization of forest products the company in 1897-1900 built a large paper mill with a mechanical pulp mill at Kvarnsmeden, near Domnarvet, which is one of the largest of its kind in Europe. The necessary sulphite pulp is supplied by a mill run in connection with the paper mill. There is also a paper mill at Skutskar with knotted pulp paper as its specialty. The Kvarnsmeden paper mill has an annual production of 50,000 tons of newsprint on reels and in sheets, and about 3000 tons of sulphite wrapping paper.



INDUSTRIAL and Domestic Training in Schools of the Company. These two views were taken in the school of housewifery and the practical technical school for boys

It has one Yankee paper making machine, 120 in. wide, and six Fourdrinier machines from 112 to 144 in. wide.

Chemical Industry is Widely Diversified

Taken up for the utilization of the by-products at the various works, the chemical industry is divided into four groups: (1) Sulphuric acid, pyrites, sulphate of copper, sulphate of iron, acetic acid, talcum, red ocher and sulphate of alumina; (2) ethyl alcohol, methyl alcohol, turpentine and liquid rosin;



BLOOMING Mill
at the Domnarvet Iron Works. In the circle is shown steel-smithing at Söderfors in the production of Domnarvet special steel

(3) wood tar, wood naphtha, wood pitch, pine tar oil, turpentine and acetate of lime; (4) Thomas phosphate and oxygen gas.

The products of the first group are all made at the Falun Mine & Copper Works, based chiefly on the pyrites extracted from the Falun mine. The other groups consist of by-products obtained in the various works, those of the second group at the chemical works at Skutskar and Kvarnsmeden, of the third group at the chemical works at Bysjön Charcoal Kilns, and of the fourth group at Domnarvet Iron & Steel Works.

The annual production is: (1) Pyrites: 100,000 to 120,000 tons, free from arsenic and selenium; (2) sulphuric acid: 14,000 tons, free from arsenic and selenium; (3) sulphate of copper: chiefly exported to the wine-growing districts of Southern and Central Europe for use against the phylloxera; (4) acetic acid: 98 to 100 per cent chemically pure, used extensively for the coagulation of rubber in the rubber producing countries; (5) red ochre: 20,000 to 30,000 barrels, known for its preservative properties and constituting the red paint on country houses in Sweden; (6) ethyl alcohol: 1,300,000 liters (165,000 gallons). Among the other products is an annual output of 200,000 bags, each weighing 100 kilos, of Thomas phosphate fertilizer (20,000 metric tons).

Development of Water Power

As the largest private owner of water power in Sweden, the Bergslaget has control of about a score of waterfalls in the Dala River and its tributaries, with a potential 200,000 hp., of which 107,000 hp. has already been developed and is supplying the motive power for the company's own industrial establishments, and also for those of the adjoining rural districts.

Some of the small waterfalls have been used as the driving power for the old iron works, mines, saw mills, and flour mills from the beginning of these industries. It was not, however, until 1870 that the water power began to be utilized on a big scale in connection with the construction of the iron works at Domnarvet. Twenty years later the water power was used exten-

sively also for the pulp and paper industry at Kvarnsmeden. The 30,000-hp. electric power plant at Bullerforsen was completed in 1910, as was also the 20,000-hp. power plant at Mockjard, for use in the mining industry at Grängesberg. There is a power station with 26,000 hp. at the Kvarnsmeden paper mills, and one at Forshuvudforsen, with 24,000 hp., which is used for the iron smelting at Domnarvet.

Welfare Institutions and Cultural Activities

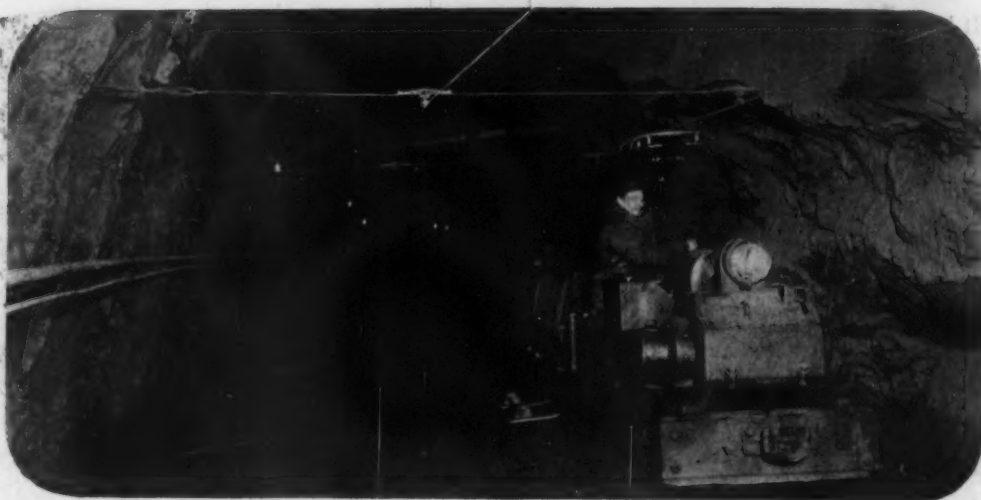
The Bergslaget Technical School was established in 1908, by Dr. E. J. Ljungberg, with a capital of 100,000 kronor, divided into ten shares. These shares carry no dividends but all receipts of the school company are used for the promotion of technical instruction for members of the families of Bergslaget employees. The following year Dr. Ljungberg donated the main part of his fortune to this school company. Schools for instruction in rural household science and in housewifery were opened for the girls. There are now 18 of these schools in operation: Six of these are vocational high schools, while three are schools for training in carpentry work and other mechanic arts, such as building construction and blacksmithing; two are apprentice schools for industrial trades, two are schools for training mining foremen, and five schools for domestic science for girls.

Extensive measures have been taken for the social welfare of the company's employees. The majority of the workmen live in houses built and administered by the company. Furthermore, the company's stores at the different works supply provisions and other commodities at the lowest prices possible to obtain through wholesale purchases in Stockholm. The hotels, clubs and canteens conducted by the company at the various works also deserve mention.

Personal Attention to Employees

For medical attendance and hygiene, the company has its doctors, nurses and hospitals, country homes for children, recreation homes and baths. Special wel-

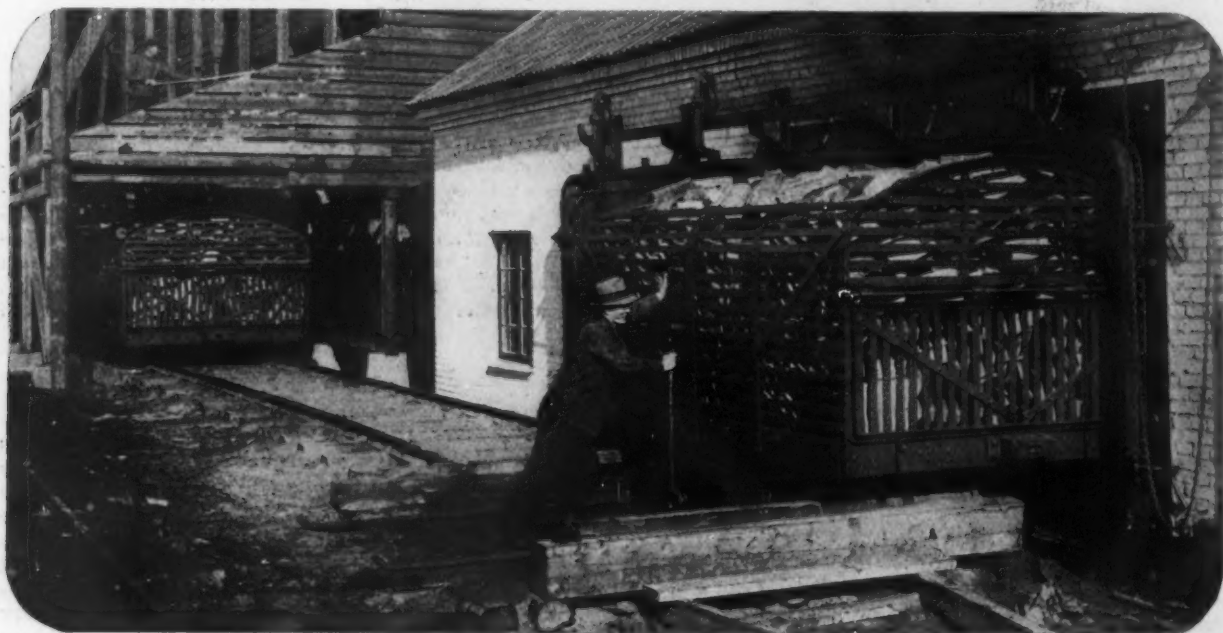
**TRANSPORT-
ING Ore**
Underground at
Grängesberg by
Means of Elec-
tric Trains



fare offices have been established for the care, wholly or in part, of the economic interests of the employees. All officials and foremen are granted pensions upon retirement, and lately a pension has been arranged also for the common workmen. Every employee is insured against accidents.

The company's technic-scientific and cultural activity is very wide. In Falun there is a large chemical central laboratory and there are similar institutions connected with all the other works. There is also a large central library at Falun, well supplied with liter-

ature on all subjects included in the company's fields of activity, with branch libraries at the various works. The company has a museum of industrial history, housed in an old administration building at the Falun mine, which is unique of its kind in Sweden. This museum is visited not only by Swedish students of industrial history but also by those from other European countries and America. At present the company is occupied in producing a history of its earlier activities. This will be of particular interest, because of the central position of this company in the economy of Sweden.



CHARGING a Charcoal Oven with Wood for Burning. The wagon, which is shoved in loaded with wood, comes out loaded with charcoal

Corrosion in Reinforcing Steel and the Remedy

That steel used in concrete must be well within the surface and that steel parts exposed must be well exposed, so as to be easily inspected and painted, is the contention of T. Arthur Smith, vice-president Turner Construction Co., New York, in a recent issue of that company's publication. Even in cases where only short lengths of reinforcement are left too near the surface, the damage from corrosion may become serious. This frequently happens, he says, when the steel is less than 1 in. from the surface. Moisture penetrates the thin covering, corrosion begins, a section of concrete is spalled off, and from this stage the corrosive action is rapid, following along the exposed bar for a considerable length. This condition may eventually impair

the strength and the resistance of the entire structure.

The writer recommends that reinforcing steel be placed at a minimum of 2 in. from the outside surface, and to make sure that this distance is held, circular concrete blocks are placed like spools at intervals on column bars. This is done at the time the reinforcement is assembled. There is no danger from rust if the protective covering of 2 in. is maintained.

It was the common practice several years ago to specify that any steel left exposed in order to bond in a future extension should be given a brush coat of cement grout. It has developed only recently that this is not sufficient to prevent corrosion. All exposed steel parts should be inspected at regular intervals and kept well protected with paint. Here the writer stresses the importance of planning construction to leave exposed steel parts easily accessible to inspection and painting.

Great Loss from Defective Castings

Ohio State Foundrymen's Association Listens to Addresses
on Varied Topics—Importance of Good
Sand Emphasized

WITH a registration of close to 200, the fourth annual convention of the Ohio State Foundrymen's Association was held at the Hotel Cleveland, Cleveland, Sept. 18-19. An interesting program was provided that included addresses on various topics covering industrial relations and other problems of particular interest to foundry executives. The meeting opened Thursday afternoon with an address of welcome by Clayton C. Townes, mayor of Cleveland.

William L. Huggins, formerly Chief Justice of the Kansas industrial court and now associated with the League for Industrial Rights, New York, was the first speaker and made a forceful plea for freedom in industry. He declared that the problem of industrial relations is the greatest problem before the American people and assailed Samuel Gompers, Robert La Follette and organized labor for their attacks on the Supreme Court. The speaker referred to the great changes that have come about in the industrial relations by the organization of large corporations on the one side and labor unions on the other, bringing controversies back where they started, or between individuals, but these individuals now represent groups. He spoke of the economic waste caused by industrial controversies which must be paid for by the general public and declared that laws must be provided for settling these controversies with justice to both sides and the public. Principles of law are being built up which must be applied to industry. The Supreme Court decision in the Danbury hat case established a principle of law but organized labor after eight years' effort brought about the passage of the Clayton act. Organized labor and Mr. La Follette are trying to take the scales and sword of justice from the Supreme Court and turn them over to Congress. The courts should be protected from attacks. The speaker declared that whether a private organization can dictate to a man as to the right to work for whom and at what wages he sees fit will have to be fought out some time and the man's rights maintained. He did not deny the right of collective bargaining but wanted it to be a contract between two parties and not a treaty brought out by force or by the threat of a strike or boycott.

One Thing Unpurchasable

Dr. Harry Meyers, Dayton Malleable Iron Co., Dayton, also spoke on some phases of industrial relations and declared that there is one thing in industry that cannot be bought. That is an organization or working force. An organization must be created. He referred to the lack of efficiency of workmen because of poor health and declared that plant dispensaries pay too little attention to many little diseases that make men incapable of doing good work. These dispensaries, he held, should give attention to slight ills, as common ordinary ills are costing plants a great deal in loss of labor. He declared that no plant is too small to have a part time doctor and some kind of a nurse. Aside from health conditions, the speaker said there were two causes for dissatisfied workmen, one internal and the other external. He urged the manufacturers to look after the outside problems of their men and to help out their loyal employees with loans in case of need. Making men satisfied in a shop rests largely with the foreman and he declared that foremanship training is the most important thing today in the relations between management and employees. The speaker advocated the organization of foremen's clubs composed of executives ranging from the general manager down to everybody that has anything to do with the management of men. These meetings should be held at least once a month and qualities of leadership

should be developed in the foremen. The essential qualities of good foremanship, he contended, are agreeableness and helpfulness. In some plants the great amount of scrap produced is due to lack of helpfulness on the part of the foreman. The speaker suggested that at each foremen's meeting a review of the month be given by the factory manager and he emphasized the importance of having a committee on waste. Marvelous results, he said, could be accomplished by getting foremen interested in reducing the amount of waste. Another subject that should be considered at the foremen's meeting is how can the production be made better and cheaper. He contended that much good can be accomplished by having the foreman come in contact with the consumers by having representatives of the sales force appear before these meetings and explain any faults that consumers might find with the product.

"Various Foundry Cost Methods—Correct and Incorrect" was the subject of a lengthy discussion by E. T. Runge, E. T. Runge Cost Co., Cleveland, who has previously addressed the association on this subject.

C. C. Smith, Toledo Steel Casting Co., Toledo, took for his subject "Why the Ohio State Foundrymen's Association?" He pointed out the work that is being accomplished by state and national associations and thought that it might be a good idea to form another national association to handle the various local problems.

High Cost of the Scrap Pile

"Reducing Production Costs" was the subject of a talk by E. S. Carman, chief engineer Osborn Mfg. Co., Cleveland. This was illustrated with lantern slides. In Mr. Carman's opinion the high production costs in foundries are due to the scrap outside of the machine shop composed of castings. This scrap pile, he said, represented a loss of \$32,000,000 a year. In the jobbing shop, he declared, 15 to 20 per cent of the castings go to the scrap pile and he asked what was the cause of so many defective castings. He said that one shop has demonstrated that 55 per cent of its defective castings are due to the molding sand. Silica is the principal element in the sand and another element is the clay used for the bond comprising 20 to 50 per cent. New sand is added after use in order to strengthen the bonding qualities. Instead of throwing away old sand, which he believed became purer with use, and putting in new, he said that clay should be added and molding sand provided of known analysis. The speaker showed photographs of molds in which he said pieces of bond evidently had not been evenly distributed and lumps of the clay had landed on the pattern. As a result fusion of bond occurs when the mold is poured and metal reaches the bond and trouble is caused.

Mr. Carman pointed out that any sand that has been used a while has a lot of shot in it and when the molten metal runs over the shot a slight explosion is caused which breaks down part of the mold. Very little slag from the cupola gets into the mold. A common producer of slag is hard spots on the mold caused by lack of uniformity in ramming. The gases generated seek the soft spots in escaping from the mold and gas pockets are caused. The speaker expressed the opinion that within 10 years foundry sand will be handled mechanically and treated in all foundries. He declared that there is too much guesswork in connection with foundry sand which should be bought by analysis and known by analysis. He spoke of the work of the committee of the American Foundrymen's Association that is striving to standardize lengths, widths and thickness

of sections of flats. This committee, he said, is also working on standardizing mounting plates.

"Simplified Practice—A Profit-Making Policy" was discussed by R. M. Hudson, chief Division Simplified Practice, Department of Commerce, Washington. A summary of his paper appeared in THE IRON AGE issue of Sept. 18.

During one of the luncheon meetings several round table discussions were held. W. B. Wallis, president, Pittsburgh Electric Furnace Corporation, Pittsburgh, discussed the electric furnace from the standpoint of pig iron. The question today, he said, is whether gray iron can be melted as cheaply in an electric furnace as in a cupola. While the cupola method is cheaper, he said that saving can be effected in the charge with the use of the electric furnace. He recommended that the use of an electric furnace in gray iron foundries be limited to making high grade castings. Everett Johnston, Lorain Steel Castings Co., Lorain, discussed the subject of melting iron and steel in the same foundry.

Three Types of Employees

Thursday evening a banquet was held which was followed by speechmaking and entertainment. S. F. Fannon, Sherman Service, Inc., Boston, spoke on "The Seventy-Five Cent Dollar Industry." He declared that employers are devoting 95 per cent of their attention to plant equipment and 5 per cent to the men and that lack of good will between the employer and employees is causing a loss of 25 per cent of every dollar that goes into the pay envelope. He said that every working force is made up of three types of employees, conservative, radical and neutral. The proportion may vary somewhat in different plants, but an analysis of 100 typical employees showed that 10 are conservative

and do a full day's work, 10 are radical and produce only 50 per cent of a full day's work and 80 are neutral and produce only 75 per cent of a full day's work. The remedy, he declared, lies in the education of employees and efforts on the part of employers to bring about a spirit of cooperation between themselves and their men.

H. Cole Estep, Penton Publishing Co., Cleveland, spoke on the foundry industry in Europe and outlined a few remarks that were to have been made by A. O. Backert, president of the Penton company, whose place he took on the program, Mr. Backert being unable to be present. He said that Mr. Backert had planned to point out that the gray iron casting industry is scarcely holding its own and to urge gray iron foundrymen to give more attention to improving the quality of their products.

The New Officers

Friday morning was spent in visiting the National Lamp Works of the General Electric Co. at Nela Park. During one of the sessions the retiring president, F. W. Huber, American Rolling Mill Co., Middletown, Ohio, was presented a traveling bag.

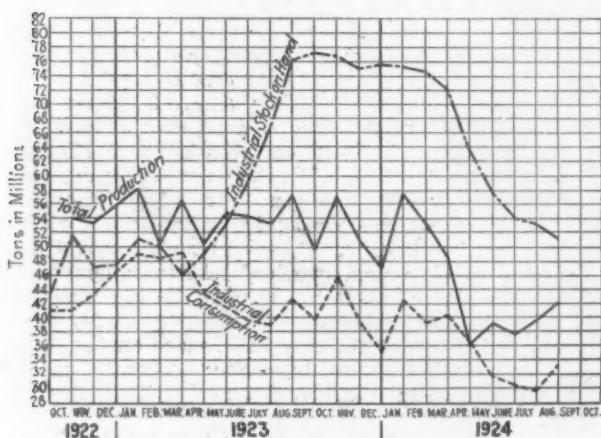
The following new directors were elected: C. C. Smith, Toledo Steel Castings Co., Toledo; Allan A. Nolte, Nolte Brass Foundry Co., Springfield; C. F. Carson, National Supply Co., Toledo; Edward Sands, Superior Gas Engine Co., Springfield; D. McDaniel, Hamilton Foundry & Machine Co., Hamilton.

Later the directors held a meeting for the election of officers for the ensuing year. Allan A. Nolte, Nolte Brass Foundry Co., Springfield, was elected president; Walter L. Seelbach, Walworth Run Foundry Co., Cleveland, vice-president, and C. C. Smith, Toledo Steel Castings Co., Toledo, treasurer. Arthur J. Tuscany was reelected secretary and manager.

BUSINESS IMPROVES

Upward Trend Shown by Survey of National Association of Purchasing Agents

The business course is upward, with indications of continued slow steady gain. This is the conclusion based on the survey by the National Association of Purchasing Agents of coal consumed for industrial pur-



Study of Industrial Coal Consumption and Stocks as an Index of Business Activity

poses. Business as a whole shows an increase of 11 per cent for August, as compared with July.

The lines on the chart showing the consumption and stocks of coal are drawn from the data supplied from all parts of the United States and Canada by commercial consumers of coal and represent all lines and branches of business and industry. The chart includes both bituminous and anthracite coal, and covers the total stocks in the hands of commercial consumers, the total tonnage consumed and the total production by months.

The August production of bituminous coal increased

3,199,000 net tons, as compared with the July output. The output of anthracite for the same period decreased 604,000 net tons. Industrial consumption during August including heating increased 3,932,000 net tons as compared with the preceding month. Industrial stocks were reduced approximately 2,247,000 net tons during the same period.

Based on the August consumption the industrial consumer had in his bins on Sept. 1 sufficient coal to meet his requirements for 46 days.

The survey calls attention to the fact that the present coal stocks under more normal conditions would be

Estimated Industrial Stocks on Hand

	Net Tons
May 1, 1924.....	63,403,000
June 1, 1924.....	57,428,000
July 1, 1924.....	54,225,000
August 1, 1924.....	53,572,000
September 1, 1924.....	51,325,000
Total Production	
Net Tons	
Month of April.....	36,364,000
Month of May.....	39,217,000
Month of June.....	37,918,000
Month of July.....	39,800,000
Month of August.....	42,395,000
Estimated Industrial Consumption	
Month of April.....	36,696,000
Month of May.....	31,693,000
Month of June.....	30,327,000
Month of July.....	29,887,000
Month of August.....	33,637,000

considered very low, and that when figuring the present stocks against the January consumption, which was only a fairly active month, it is shown that the stock in industrial consumers' bins on Sept. 1 would be sufficient for only 34 days.

Rolling Mill Awards

Carnegie Steel Co. has contracted for another mill in connection with its Homestead plant modernization program. The Mackintosh-Hemphill Co. will furnish a 28-32 in. structural mill for that plant. Tables, gears, drives, etc., for this mill have not yet been placed.

Mackintosh-Hemphill Co. also will build a 40-in. blooming mill for the Wisconsin Steel Co., South Chicago, the order also including all accessory equipment from the ingot buggy down to the run out tables.

Machine Tool Exhibition Diversified

Correct Manufacturing Design, Shop Measurements and
Other Subjects Discussed at Fourth Annual
New Haven Equipment Exhibition

A COMPREHENSIVE exhibit of machine tools and other shop equipment, many items of which have been recently developed or improved; five technical meetings at which 13 addresses and papers were presented; plant visitations and two informal dinner meetings made up the program of the New Haven Machine Tool Exhibition held at Mason Laboratory, New Haven, Sept. 15 to 18.

This exhibition, the opening session of which was reported in THE IRON AGE of Sept. 18, has been held each year since 1921 under the joint auspices of the New Haven section of the American Society of Mechanical Engineers, Yale University and the New Haven Chamber of Commerce. Both in the number of companies represented and in the attendance, which is estimated to have been approximately 15,000, this year's exhibition was larger than the previous ones. Students of Yale and other universities were among the visitors, although engineers and executives of New England industrial plants formed a large proportion of the attendance.

Variety of Subjects at Technical Meetings

The technical sessions, under the direction of Maj. Earle Buckingham, engineer, Pratt & Whitney Co., Hartford, covered a variety of subjects. An outstanding paper was on the "Design of Ordnance Material" by J. D. Pedersen, United States Armory, Springfield, Mass.

"To attain mass production readily and at low cost," said Mr. Pedersen, "the proper manufacturing design of the components to be produced is of vital importance. With such a design, good methods and machining equipment and correct limit gages are required to secure interchangeability and volume production."

The "Yankee mechanic" was said to be passing, and is being replaced by workmen of less ability and zeal. The trend of the development in mechanism, however, was emphasized as being toward greater intricacy, which imposes ever greater demands on accuracy in production.

"Reconciliation of these opposed conditions," said Mr. Pedersen, "to permit progress, can lie only in perfecting our technique and in the complete use of limit gages. Limit gaging not only requires a minimum of skill and judgment on the part of the factory personnel, but enables a result to be accomplished not otherwise attainable. When applied to the manufacture of components whose tolerances have been correctly analyzed and determined, production quickly resolves itself into fairly simple routine."

It was stated that full benefit is not generally obtained from the use of limit gages and our other means of mass production, except by a few advanced organizations. This was exemplified by a vivid picture said to be typical of production during the World War, and describing the travail considered inseparable from getting production under way. Difficulties and delays at the start of production and during its course might be avoided, it was said, by initial proper design of the components to be made. It was thought that the service of analyzing a manufacturing design, as well as a proper equipment to produce it, could be supplied advantageously by a company whose business is that of building gages and special tools. "Continuous engagement would permit the development of an able engineering corps along the lines of consistent progress," said Mr. Pedersen. "The effect of a few such organizations would soon become apparent and would do much toward the improvement of our industrial position when brought into competition with reviving European industry based on cheaper labor."

The number of parts, the machining and other operations required in various items of ordnance, and the tolerances found satisfactory for various operations and conditions, were given in the paper, as well as an illuminating discussion of legitimate variations of tolerances as demanded by special conditions. Fixture design is also discussed.

Integrity of Gages a Fundamental Factor

It was stated that, given proper design of the components, production possibility is based upon the integrity of the gages. Periodic and frequent gage inspection as part of the production routine is recommended. The system of gage checking based upon the use of accurately made model parts was said to have proved unfeasible. It was emphasized that, in the proper design of ordnance material or similar mechanism, no pains should be spared to arrange the surfaces of the components for easy machining and gaging. A limit analysis was said to be useless which contemplates the setting of unattainable tolerances with the methods specified.

With mass production equipment ordered for the manufacture of a weapon just adopted, and with one or more properly functioning models available, together with the drawing from which the models were made, factors to be considered before putting the mechanism into production, were outlined. "That the component parts in the models properly function proves only that they will do so in the few models in which they may have been tried," said Mr. Pedersen. "This carries no proof that component parts made with the variations demanded by mass production methods will assemble correctly, in all combinations, to perform the intended function. Such proof can be had only by a mathematical analysis of the possible effects of accumulation of the tolerances demanded by mass production methods."

The determination of the locating points of a component and the steps for obtaining these were discussed. Determining the general characteristics of the machining fixture standard for the component was given as next in order, to be followed by the choosing of tolerances and limit analysis. The adoption of attainable tolerances and the correct analysis of their effect under all conditions was emphasized as the crux of interchangeable manufacturing and mass production. Mr. Pedersen's discussion of the analysis of tolerances and limits was illuminating.

Concurrent with tolerance analysis should go, it was said, the preparation of the necessary diagrams, which should show graphically, for each function, the extreme conditions of contact or clearance resultant from the maxima and minima of the involved surfaces. These diagrams, with the basic dimensions and figures of both direct and resultant limits, are the record sheets of the tolerance analysis.

In concluding, Mr. Pedersen pointed out that the time required to determine and specify a correct manufacturing design is small when compared with the results obtainable. These results, he said, cannot be had in any other way, emphasizing that the alternate method of "cut and dry" during production is costly and entails many delays. It was stated that plans of organization for mass production may be either vitiated or made successful by the degree of excellence entering into the design of the material. In spite of our present satisfactory methods of machining and gaging, the "neck of the bottle" lies in badly determined manufacturing design of the components sought, he said.

An instructive discussion of shop measurements was

given in a paper bearing that title, which was presented by Earle Buckingham, engineer, Pratt & Whitney Co., Hartford. "What shall we measure; why should that measurement be made; and how shall we measure it?" were questions which, it was said, must be answered before any shop measurements can be effectively made. "Too often," said Major Buckingham, "the second question (why should the measurement be made?) is ignored, with the result that indirect and complicated measurements are made that have little effect on the control of the essential sizes that should be maintained. The real science of shop measurement lies in knowing what and why to measure, rather than in knowing how to measure."

"The problem of proper shop measurements is closely allied to the problem of proper dimensioning of drawings. A fundamental law of dimensioning is that dimensions should be given between those surfaces which it is essential to hold in a specific relation to each other. If all drawings rigidly adhered to this rule, in most cases the problem of shop measurements would resolve itself into the problem of how to measure the dimensions shown on the drawings. Unfortunately few drawings comply with this law in all respects. Too often the position of the dimensions on the drawing is governed more by the convenience of the draftsman than by the essential interrelation of the surfaces dimensioned."

"To a great many people the purpose of measuring is to see that the parts as made agree with the drawing. This is not their true function, however. The main purpose of measurement is to prevent unsatisfactory parts from being produced. The testing which may be done later is but a supplementary check on the work accomplished. Measurement, or inspection, to be most effective should be used as a preventive, and not a cure. The time to prevent errors is when the metal is being shaped to size or form, and not after the work has been completed. The object of measuring or inspection after individual machining cuts or entire pieces have been completed is to insure that all parts which will function properly are accepted, and that all parts which will not be rejected as the defect exists, to save the expenditure of further effort on useless parts. When the drawings truly and definitely record the requirements of acceptable parts, they may safely be adhered to. Until then they will either be ignored, in part at least, or else unnecessary expense will be incurred in the production of the parts."

"When the question, 'Why should that measurement be made?' is asked, and the answer is that there is no particular reason why it should be made for any purpose, it is evidence that the dimension in question should not be on the drawing. If the point or surface in question is not dimensioned from any other point, a search should be made for its most essential interrelated surface, and its measurement should be determined from there. If it should already be dimensioned from there also, the first dimension is not only superfluous, but also misleading, because if care were not exercised the position of the surface in question might be established from a non-essential register point instead of from the really essential one."

In another part, Major Buckingham said:

"One fact should always be kept in mind. A high degree of accuracy is expensive and does not always serve a useful purpose. Any surface should be held to that degree of accuracy truly required, and no closer. Every functional surface of a mechanism has more or less definite limits of size within which it will operate properly. In some cases the extent of the permissible variations is small; in many other cases it is relatively large. No useful purpose is served in arbitrarily holding all variations to extremely small amounts, regardless of the conditions to be met. The object of manufacturing is not to see how closely certain sizes can be held, but rather to produce various commodities as economically as possible."

Forecasting Demand for Machine Tools

In a forceful address on "Forecasting Demand for Industrial Equipment," E. F. Du Brul, general manager, National Machine Tool Builders' Association, Cincinnati,

stated that certain economic forces unfavorably affect all equipment industries and make them more subject to irregular operation than industries making consumer goods. The operation and effects of these economic forces have not received the consideration they should have had, he stated.

The dual character of equipment demand was pointed out, it being said that machines are bought for replacements and for expansions of facilities to take care of increasing demands for the products of the machines. The two classes of demand act differently, replacement demand varying roughly with the amount of product made, and expansion demand varying with the rate of growth in demand for the product of the machine. This fact was emphasized as making the management of machine building shops more difficult.

Cooperative Economic Study

The machine-tool industry was cited as an illustration of what could be done in cooperative study of the economic problem of stabilization, employment and production. The decision of the industry to study its economic conditions and to identify the causes of its frequent distress in the hope of working out remedies was made in the latter part of 1920. The program started with the beginning of the year 1921. Figures were gathered from 29 companies, covering their annual shipments over the previous 20 years. The figures were reduced to an index number, taking 1913 as the base year, and charts were made showing the shipments and including also a trend line or line of normal growth. A so-called barometer curve was explained and also the making of the machine tool index and its relation to other business indexes. The practical uses to which buyers and builders of machine tools can put the information furnished by the machine tool index were given at length.

In conclusion, Mr. Du Brul said: "We can get more cooperation of the sort needed by having engineering brains, as well as business brains, working on this problem of cutting off the peaks and filling up the valleys of the cycle wherever possible. As time goes on, more and more equipment buyers will use various economic indexes to guide their policies in expansion and replacement. When many large buyers do this we shall see less irregularity in demand and operation of all equipment industries in which so many mechanical engineers are engaged."

Machine Shop Practice Research Proposed

At a session devoted to the research work necessary to assure further progress in machine shop practice, Prof. C. A. Beckett, Columbia University, New York, presented by title a paper in which is reviewed foreign progress in that field. The paper shows the manner in which the solution of some of these research problems has been attempted by foreign experimenters. It refers more specifically to the problems of the development of a standard method for testing tool material and material to be cut; the development of a standard heat-treating method, and the development of methods for testing tool performance.

That valuable work is being carried on in England and in Germany, and being carried on continuously, is apparent from a reading of Professor Beckett's paper. A plan of research proposed by him at the meeting includes taking "mild steel" as a base material, taking the best grade to be obtained of high-speed steel of the leading manufacturers of that class of steel and heat treating this steel in accordance with the steel manufacturers' specifications. It was proposed that the tools then be ground to the standard Taylor contours and that instruments be developed to measure the forces, hardness, etc.

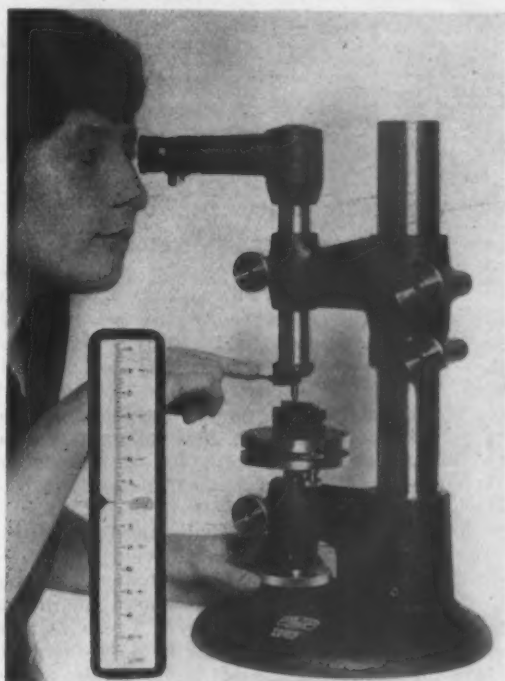
With these materials, tools and instruments at hand, it will be only a process of elimination to determine the best grade of tool steel for cutting mild steel, said Professor Beckett. "In other words, we will have a certain grade of steel that will be heat treated in a certain definite manner, and ground to a standard

(Continued on page 799)

Optical Measuring Device with Scale Graduated to 0.00005 In.

To facilitate the use of comparison with standard or master gages in the measuring of gage blocks, plug gages, gears, bearings or other work calling for extreme accuracy, Carl Zeiss, Jena, Germany, has placed on the market an instrument known as an Optimeter, which is being marketed in this country by Schuchardt & Schütte, New York.

The optimeter may be used in either a vertical position or horizontal. It consists essentially of a substantial base with an upright post. On this post are



Reading for Accuracy to 0.00001 In. Is Possible With Use of Vertical or Horizontal Optimeter



mounted an arm bearing the work table and above it the measuring device consisting of an optical tube with scale graduated to 0.00005 in., light orifice, prism, and mirror.

In the case of the instrument used in vertical position for measuring slip gages, for instance, an auxiliary table in the form of a ring is placed on the instrument table. Both the instrument table and the rim of the auxiliary table are ground and lapped to optical plane finish. The center of the auxiliary table is provided with an agate ball flush with the top of the ring. A ball shaped agate feeler is used on the plunger which actuates the mirror.

In use the standard gage is placed between the two agate balls and the scale set at zero. The work to be measured is then placed between the agate balls and any inaccuracies in it will be shown on the plus or minus side of the scale. This scale is of ground glass and is graduated to 0.00005 in., but when seen through the eye piece the space between graduations appears as approximately 0.05 in. so that smaller fractions as close as 0.00001 in., it is claimed, may readily be estimated.

The reading is readily accomplished by light entering at the left side of the eye piece, being refracted through prisms to the mirror and back through the prism to the scale. The mirror which is hung on two balls is tilted to its proper position by a third ball at the upper end of the feeler. The rolling action thus obtained, it is claimed, does not alter the fulcrum distance.

For longer work which could not be satisfactorily supported on the vertical type of instrument, a horizontal is provided. In this case the optical tube and feelers are mounted on horizontal bars which in turn, through a frame, are carried on the upright post. The table in this case is mounted on balls to obtain rolling friction. This, it is said, will permit the table to move with less pressure than that required to register motion on the feeler, so that work will readily accommodate itself to central position. Immediately behind the work position is an adjustable, graduated stop rod which will permit the work being measured to enter only to a certain depth between the feelers. Thus on round work the stop would be set to half the diameter of the work. By use of flat agate feelers any inaccuracies in the setting of the stop rod will be compensated for. This instrument will check diameter, parallelism, etc.

A variety of attachments may be secured for use with the machine for measuring balls and rollers for bearings, ball races, wires, spacing washers, and a variety of other work in addition to gages. It is claimed that the instrument will measure foil and other delicate articles without marring.

Two Per Cent Gain in August Employment

Industrial employment in the country, as reported in the Department of Labor's August bulletin, clearly reflects the revival of business. There was an increase of 2 per cent in the number employed in industries of the country over July. Moreover, there was a gain of 3.7 per cent in total payrolls with a gain of 3.5 per cent in average per capita earnings, the first gains in these items since February. Compared with August of last year, there was a decline of 15 per cent in the number employed and of 17 per cent in earnings. The largest declines compared with a year ago are shown in the iron and steel, textile and vehicle groups. Plants in operation in August and reporting to the department were employing 77 per cent of normal forces, and these were employed 88 per cent of full time. This is a gain of 3 per cent in capacity and 1 per cent in full time operation.

New Steam and Hot Water Unit Heater

For plants where steam or hot water is available for heating a unit heater has been developed by the Buffalo Forge Co., Buffalo, N. Y., designated as the Breeze-Fin. A series of heater tubes, the unit casing and a fan and motor constitute the component parts. The heater tubes, of copper, are wound with a copper ribbon to increase the radiating surface of the coils and thereby afford rapid transmission of the heat. Two men can easily carry this heater from place to place.

The housing is of heavy galvanized steel, die stamped to standard template, flanged and punched to facilitate assembly and installation.

Beginning Oct. 1 three of the locomotive shops of the Delaware, Lackawanna & Western Railroad, located at Buffalo, Scranton, Pa., and Kingsland, N. J., will be placed on a six day per week working basis, according to announcement made by C. J. Scudder, superintendent of locomotive power. More than 2000 men are affected by the order. For the past several months the shops have been operating on a five day a week schedule.

The Algoma Steel Corporation, Sault Ste. Marie, Ont., resumed operations at its 12-in. merchant mill Sept. 22. At the same time two open-hearth furnaces will start to supply the necessary steel for the mill. It is expected that the 18-in. merchant mill will start up in the not distant future.

Multiple Valve-Seat Grinder

A valve-grinding machine, for grinding all the valve seats in a gasoline engine cylinder block at one time, has been brought out by the Defiance Machine Works, Defiance, Ohio. This is a production tool. All that is required of the operator during the grinding operation is to press lightly on a lever, to hold the valve head drivers down against a regulated spring tension. This, however, can be accomplished automatically by making provision in the holding fixture. The oscillating or re-



Spur Gears and Sliding Rod Produce Reciprocating Motion in New Valve Grinder

verse movement of the spindles, as well as lifting and returning the valve head drivers, are accomplished automatically.

A feature of the machine is the new method used to provide the oscillating movement to the spindles. This motion is obtained by the use of spur gears and sliding rod, which effect a reciprocating movement to the drive rack. This design is said to eliminate all vibration and excessive lateral thrust. These parts are encased in a tight housing packed with grease. All working parts of the machine are inclosed, to guard against the entrance of dust and to protect the operator.

The table to which fixtures for holding the work are clamped is gibbed to the base column and is provided with a binder screw for clamping at any position on the column. The weight of the table when raising or lowering is supported and controlled with a hand wheel on a jack screw. It is pointed out that sufficient weight and strength have been properly distributed to withstand severe strain and maintain perfect alinement during a long period of use.

The spindles are ground true and fitted in sleeves and ride on a race of ball bearings at both top and bottom ends. This arrangement, it is stated, effects a free and easy oscillating movement to the spindles. The spindle heads are gibbed to the top frame and are adjusted by a screw leading through the heads. Each head may be moved independently of the other and is provided with jam nuts on each side to hold it in position. A lever is provided to bring the spindles down to engage the drivers and valve heads.

Fixtures for holding work to the table and drivers for oscillating the valve heads are special equipment. The drivers are made with tension, in order to bear on

the valve heads with even pressure. The driving points are made special to suit the valve heads. Special heads can be furnished to grind the seats of the staggered type of valve.

The standard machine is built with 12 or 16 spindles and one is made in a smaller size for two to eight spindles. Principal specifications of the standard machines are as follows:

Minimum distance center to center of spindle	1 1/2 in.
Maximum distance between outside spindles	30 in.
Distance face of upright to center of spindle	7 in.
Size of table working surface	15 x 32 in.
Adjustment on table	12 in.
Maximum distance nose of spindle to table surface	25 1/4 in.
Adjustment on spindles	3 in.
Oscillating movement of spindles, every	1 1/4 rev.
Automatic up and down movement of spindles, every	10 rev.
Speed of driving pulley, r.p.m.	125
Electric motor required	5 hp.
Speed of motor, r.p.m.	1100
Floor space occupied	33 x 36 in.

Wholesale Prices in August

Figures of the Bureau of Labor Statistics show an increase in August in the general price of all commodities, as compared with July, but a slight decrease from August of last year. The current figure is 149.7 (based on 100 for 1913), against 147 for July and 150.1 for August, 1923. Compared with one year ago, six of the groups of items show decreases, while three show increases. Among the former, metals and metal products show a decrease of 9.8 per cent, this being the greatest decrease of any group. Except for chemicals and drugs and the miscellaneous groups, metals and metal products now are nearer to their 1913 level than is the case with any other group. Cloths and clothing at 189.9 still retain by far the highest position.

With the exception of metals and metal products and fuel and lighting, every item showed an increase in August, as compared with July. These increases range from a fraction of one point in housefurnishing goods to a maximum of 5.3 points in foods, and 4.4 points in farm products. The table shows the levels of the several groups in the current month, the previous month, and the corresponding month of the previous year, together with the percentage of change which has taken place in one year:

Index Numbers of Wholesale Prices, By Groups of Commodities (1913=100)

Group	1923		1924		Decrease in One Year, Per Cent
	August	July	August	July	
Farm products	138.6	140.9	145.3	145.3	*4.8
Foods	141.6	138.7	144.0	144.0	*1.7
Cloths and clothing	192.6	187.5	189.9	189.9	1.4
Fuel and lighting	178.2	173.2	169.7	169.7	4.8
Metals and metal products	144.6	130.4	130.4	130.4	9.8
Building materials	185.9	168.8	169.2	169.2	9.0
Chemicals and drugs	127.4	126.5	130.1	130.1	*2.1
Housefurnishing goods	182.7	170.8	171.0	171.0	6.4
Miscellaneous	120.2	112.4	115.0	115.0	4.3
All commodities	150.1	147.0	149.7	149.7	0.3

*Increase.

Heat Transfer and High-Temperature Insulation

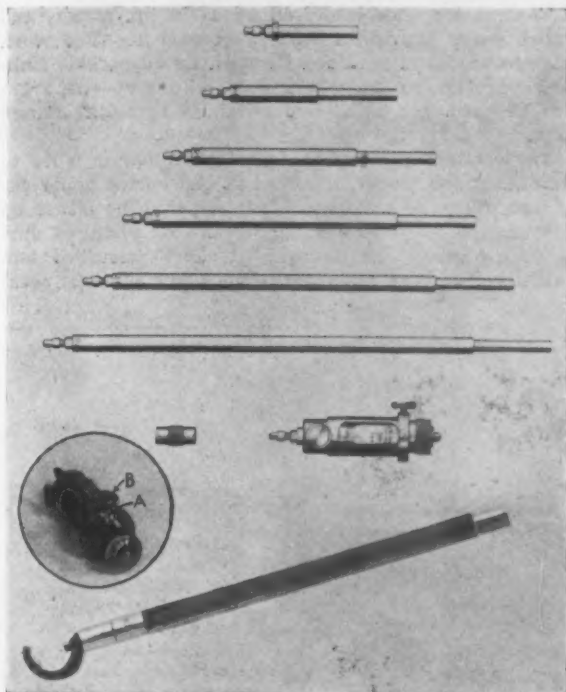
During the present school year, a lecture on heat transfer and high-temperature insulation, prepared by the engineering department of the Celite Products Co., Chicago, is being given before the various engineering classes at approximately 50 of the large universities throughout the country. The lecture is illustrated with 25 lantern slides, showing curves on conductivities of various materials, charts showing heat losses through various wall constructions in heated equipment, photographs of insulated equipment under construction, etc. The schedule is now being arranged for the delivery of the lecture during the 1924-5 college year.

Printed copies of the lecture with illustrations are distributed among the students for their records and are available also for general distribution to any one interested in this subject.

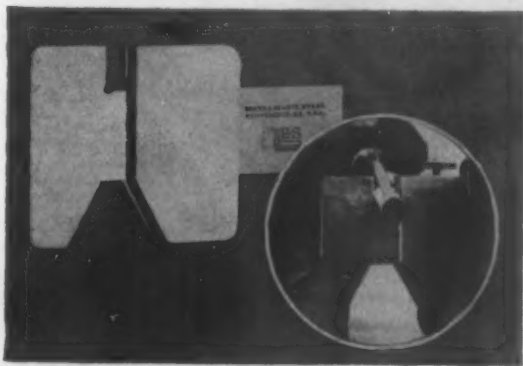
New Gage and Micrometer

Two new tools, known as No. 577 thread tool gage and No. 264 inside micrometer, the latter with No. 287 handle, have been introduced by Brown & Sharpe Mfg. Co., Providence, R. I.

The thread tool gage is made for measuring or checking thread cutting tools from a sharp vee to a 1 in. flat. It consists essentially of a stationary and a movable angular jaw with corresponding measuring or setting surfaces. Both the angles and setting surfaces



Close Gaging of a Wide Range of Thread Cutting Tools May Be Done with One Tool Gage and Suitable Slot Setting Gages.



Greater Reach and Unchanged Setting Are Features of a New Inside Micrometer with Head Binder and Holder

are hardened, ground and tested for accuracy. The angles are made for U. S. S., Acme or Whitworth threads, being ground to 60, 29 and 50 deg. respectively. The same gage may be used for 29 deg. screw threads or 29 deg. worm threads, but as the flats on these two types of thread differ, a different slot gage or setting block must be used for each.

In using the gage, it is necessary to set the movable jaw to a gage of the width or diameter equal to the width of flat on the thread to be cut. This is done by holding the gage or a piece of flat stock between the measuring or setting surfaces at the top, thus bringing them the proper distance apart, when the movable jaw is bound in place by the set screw. This produces a width of flat and proper spread of angle on the lower side of the gage for checking the thread tool.

The wide range of pitches which it is claimed this

gage will cover shows great versatility and a decided saving in cost of gages which would otherwise be necessary, as shown by the number of slot gages necessary to cover all pitches.

The principal feature of the new inside micrometer is the clamping device. The instrument consists of the micrometer head with $\frac{1}{2}$ in. measuring screw, six rods of different lengths and a spacing collar. The range of measurements is from 2 in. to 8 in. by thousandths. The six rods provide changes in increments of an inch, the $\frac{1}{2}$ in. measuring screw and $\frac{1}{2}$ in. spacing collar giving all gradations; the screw alone, for instance, measuring the first half inch between 3 in. and 3 $\frac{1}{2}$ in. and the spacer and screw together the second half inch between 3 $\frac{1}{2}$ in. and 4 in. The shoulder on any rod may be fitted into the micrometer head to give the full span desired. The measuring ends of the rods and head are hardened and adjustment for wear is provided.

The clamping device is formed by two slits in the outer shell, the metal between the two slits forming a shoe, A. This metal shoe, when the micrometer is set, is forced against the micrometer thimble by the screw, B, thus preventing any change in the setting when the tool is in use.

To permit easier use of the micrometer in small deep holes a handle is provided. This has a hook at one end, made to fit snugly to the micrometer head shell. An adjustable brass lug to prevent marring is provided to hold the micrometer securely in the hook, when the tool may be inserted in small holes for a greater distance than would be possible by hand.

New Soaking Pit Installations

Extensive improvements recently were completed by the S. R. Smythe Co., Pittsburgh, for the following companies:

United Alloy Steel Corporation, Canton, Ohio—additional soaking pit furnaces and warming pit furnaces including stripper building; extension to soaking pit building and extension to gas producer building. The soaking pit furnaces are fired by an improved method, using producer gas or coke oven gas. By this new system producer gas or coke oven gas can be applied to the soaking pits, switching from one fuel to the other in 15 minutes, when a change is desired. The warming pit furnaces operate exclusively on coke oven gas.

Mansfield Sheet & Tin Plate Co., Mansfield, Ohio—an additional 4-hole soaking pit furnace with operating floor was installed and is now in operation. The furnace can be fired with either natural gas or producer gas without necessity of regeneration.

Timken Roller Bearing Co., Canton, Ohio—three 2-hole soaking pit furnaces, each hole being 11-ft. 0-in. long x 6-ft. 6-in. wide, including operating floor. The soaking pit furnace covers are operated by a screw mechanism, motor driven, and are equipped with Timken roller bearings, which is a new feature for this particular purpose. These pits can be operated with producer gas, natural gas or fuel oil. All steel at this plant is electrically melted. The ingots are top poured in corrugated molds running about 6000-lb. The ingots will be broken down upon a 36-in. 3-high blooming mill, instead of by a heavy duty steam hydraulic press now in operation. There are several 6-ton Heroult furnaces now in operation and in the space now occupied by the press and heating furnaces it is planned to build additional electric melting furnaces.

Personnel Administration Conferences

Announcement is made of a course of conferences meeting Friday evenings from Sept. 26 to May 29 next at 17 West Forty-seventh Street, New York. At these meetings will be discussed philosophic foundations, economic foundations and psychological foundations of the relations between capital and labor, the basic principles of business administration and management and practical applications thereof. Each conference will be led by an expert in the particular topic covered, the total number of lectures being 30. Complete information may be obtained of the Bureau of Personnel Administration at the address given.

New Automatic Die Sinking Machine

A new machine, of special interest perhaps to the silverware trade, is the type BF automatic straight line reducing machine illustrated, which recently has been brought out by the Keller Mechanical Engineering Corporation, Brooklyn. It copies the pattern of a large master and reproduces in steel, iron, brass and other materials the minute details of a given pattern in intaglio or relief.

Although operating on the reducing principle, similar to the type D machine which has been marketed by the company for many years, the new design is different in that it does not operate with the rotary or lathe movement, as did the earlier type. The swinging bar on which are mounted the tracer and cutter has been retained, but the bar is moved across the face of the work horizontally. The width dimension is set up independently of the length dimension, and it is possible thereby to reduce disproportionately. Obviously this is of considerable advantage in many kinds of die work, and especially in dies for flat ware.

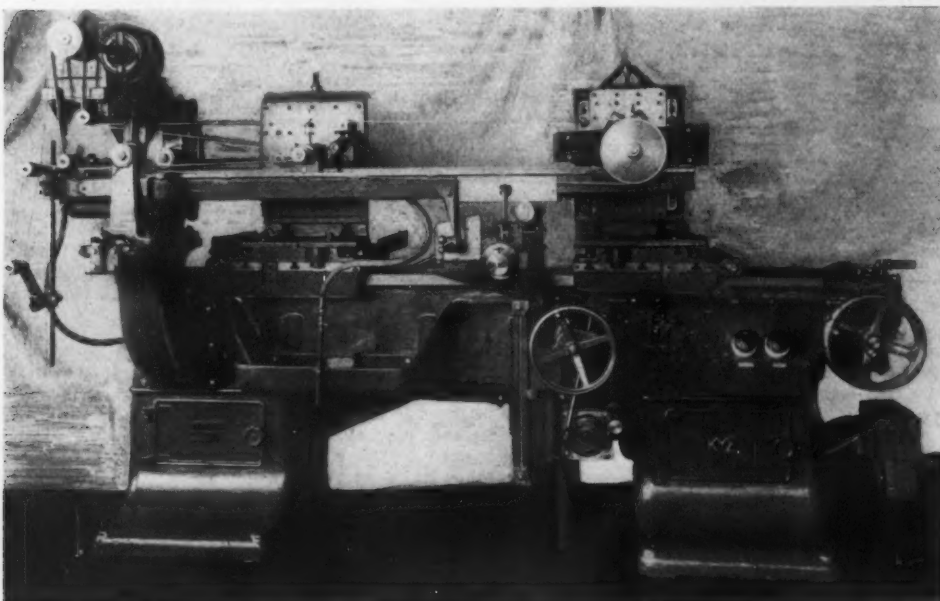
The arrangement of parts may be noted from the illustration. The guiding or tracer point contacts with

duction of length to width is readily obtainable, and this permits the use of one master to make several dies of different proportions. Relief may be disproportionately increased or diminished also. A scale is provided for setting.

Extreme sensitiveness combined with rigidity are features of the machine, self-contained construction being also emphasized by the makers. The cutters used are simple and formed mills are not employed. A skilled operator is unnecessary and constant attention is not required, the machine being capable of running continuously for 24 hr. without attention.

The master slide is driven by a 1/3-hp. motor, and change gears provide a variety of speeds. The work slide movement is obtained through an adjustable linkage connection to the model slide. Four speeds, from 4 to 12 1/4 in. per min., are obtained through change gears.

The vertical movement of the cutter bar is 0.003 to 0.120 in. at the tracer, the feed at the cutter being dependent upon the position. The feed may be either up or down and may be started, stopped or changed during the progress of the work. It can be changed conveniently from one extreme to the other without mak-



Automatic Die Sinking Machine of Straight-Line Reducing Type. The machine copies the pattern of a large master and reproduces it in steel, iron, brass and other metals

the master and causes the cutter bar to move in or out to suit the height or depth of the pattern. By feeding the tracer vertically over the master in steps the entire master is covered. The rotating cutter mounted on the same bar cuts this pattern in the work.

Reductions or enlargements are obtained by the relative position of the work and the master to the pivot. Scales are provided on the bar and on the back of the machine for setting the degree of enlargement or reduction required. The disproportionate re-

ing any gear changes. The spindles, which are hardened and ground, are provided with six speeds, varying from 650 to 4230 r.p.m., by means of removable pulleys. The high-speed spindle runs at 7760 r.p.m. Means for cutter lubrication is provided.

The range of reduction is from 3/4 to 1/10 size of the master. Enlargements from 1 1/2 to 4 times the size of the master may be made. The floor space occupied by the machine is 4 ft. 6 in. by 9 ft. 8 in. The weight is 6000 lb.

Dominion Alloy Steel Corporation's New Plant

The Dominion Alloy Steel Corporation, Sarnia, Ont., has awarded additional contracts in connection with its plant now under construction there. Foundations are going in and the steel work for the sheet mill is being erected. The contract for 900 tons of structural steel was awarded to the Sarnia Bridge Co., Sarnia, Ont. Four or five hot sheet mills will also be installed in addition to auxiliary equipment necessary to complete the initial unit. Closing action will be taken immediately on a 10-ton, 45-ft. span electric traveling mill type overhead crane. Raw material will be stored in a building 506 ft. long with a crane span of 45 ft. The building to house the heating furnaces will be 506 ft. long; the hot mill department building will be 506

ft. long with a crane span of 75 ft.; the shearing department will be 286 ft. by 27 ft., and the warehouse 220 by 70 ft. It is expected that the first unit of the plant, which will cost approximately \$3,500,000, will be in operation by April 1, 1925.

Freight cars in need of repair on Sept. 1 totaled 210,109, or 9.2 per cent of the total number, according to the American Railway Association. This was an increase of 6168 over the number reported on Aug. 1. Of the total number, freight cars in need of heavy repair totaled 158,200, or 6.9 per cent, an increase of 1592. Reports showed 51,909, or 2.3 per cent, in need of light repair, an increase of 4576.

Automatic Rivet Drilling Machine

To produce hollow rivets by drilling, the production machine illustrated, made by the Waterbury Farrel Foundry & Machine Co., Waterbury, Conn., is designed to drill any metal and deliver the finished product free from chips. An inspector device is used to assure a uniform product needing no visual inspection.

Blanks fed automatically from a drum hopper into a vertical chute are transferred toward the machine



Continuous Operation With Inspection Paralleling the Drilling Function Are Features of the Automatic Rivet Drilling Machine

center by a slide. A vertically operated gripping die holds them during drilling. Then they are transferred to the inspector and finally to a stripper, falling thence into a tote box or other receptacle. The machine usually is motor driven ($\frac{1}{2}$ hp.), but can be driven by belt.

At the lower end of the vertical chute a removable plate extends in beyond the inspecting station. This plate, made to suit the rivet head, backs up the rivet during drilling and inspecting. While No. 1 rivet is being drilled, the slide returns for No. 2, which is carried in to the drilling position at the same time that No. 1 is carried to the inspecting position. While No. 2 is being drilled and No. 1 inspected, the slide returns for No. 3. The next movement of the slide carries No. 3 to the drilling position, No. 2 to the inspecting position, and No. 1 past a stripper finger. Then, when the transfer blade returns for No. 4, No. 1 is stripped and falls into a delivery tube leading to a receptacle. This completes the cycle of operations.

The gripping device is operated by a cam on the backshaft, the cam lever extending in underneath the machine to a vertical gripping slide. The slide carries a notched gripping die which is thus moved upward, lifting the blank out of the notch in the blade and holding it positively against an upper jaw throughout the drilling operation.

Attached to the gripping slide there is a gripping finger, parallel to the gripping die, which holds the drilled blank while it is being inspected.

The drill spindle, mounted in ball thrust bearings in a slide adjustable longitudinally, is fitted with a standard No. 1 Jacobs drill chuck. The feeding movement is derived from a cam on a shaft at the end of the machine. To change from one depth hole to another it is necessary to change the cam, which has special provision for making this change quickly. A set of six cams will give variations in depth of hole from $\frac{1}{8}$ in. to $\frac{1}{2}$ in. by increments of $\frac{1}{16}$ in. The return movement of the spindle slide is spring actuated.

The inspector slide is moved forward with the spindle slide until a pin in the inspector head (which is attached to the inspector slide), enters the drilled hole as far as possible without bottoming. In the event that

a drill has broken off in the previously drilled rivet, the inspector pin will strike against it and cause a fulcrum lever in the head to trip and release the main clutch. This device functions also if, for any reason whatsoever, the hole is drilled shallow.

Rivets up to $\frac{3}{16}$ in. x $\frac{1}{2}$ in. may be drilled on this machine, with special arrangements taking up to 1 in. in length. For steel rivets, using high-speed drills, the spindle speed is 4100 r.p.m. This becomes 7500 r.p.m. for brass rivets and carbon-steel drills. The camshaft speeds are 17, 25, 34, 52 $\frac{1}{2}$ and 61 r.p.m. Floor space occupied is 25 $\frac{1}{4}$ x 44 in. Net weight is 600 lb.; boxed weight, about 700 lb.

High-Speed Electric Grinder

To obtain proper cutting speed for small grinding wheels, Forbes & Myers, Worcester, Mass., have placed on the market two additions to their line of direct motor driven bench grinding machines. The new machines are induction type, and are claimed to have overcome faults previously apparent in alternating current motors when run at the high rate necessary for proper peripheral speed on small wheels. This type of motor is designed to maintain speed under any reasonable load.

The two new machines run at 5400 r.p.m. and 7200 r.p.m. on 60 cycle current, making them suitable for wheels of 3 in. to 4 $\frac{1}{2}$ in. and down to 2 in. respectively, giving a surface speed, say, of 5600 ft. per min. It is claimed that even smaller wheels may be used with a fair degree of satisfaction. To avoid interference of work with the motor frame, the end plate toward the wheel is extended 7 in. in the form of a long bearing or sleeve.

The spindle is $\frac{1}{2}$ in. diameter at the wheel. Motor is of $\frac{1}{4}$ hp. and may be furnished for two or three phase current and any voltage up to 550. Motors for



Induction Motor Runs at 7200 R.p.m.

25 cycles may also be secured with lower speed. These induction motors may be used for purposes requiring high speed other than grinding and will be built in larger sizes to run at high speeds. High speed direct current motors up to 250 volts are likewise available.

Round Table Discussion on Electric Cast Iron

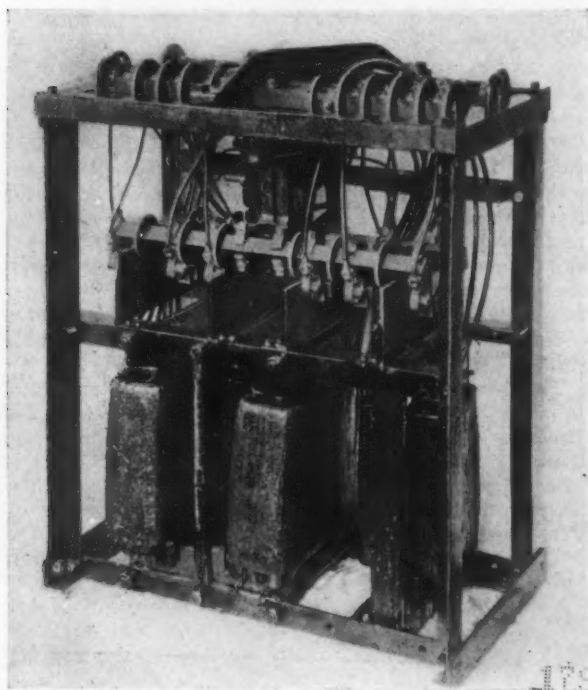
The Electrothermic Division of the American Electrochemical Society is to hold a group luncheon and round-table discussion on electric furnace cast iron at the meeting of the society in Detroit, the time being Thursday noon, Oct. 2, at the Hotel Tuller.

The round table will engage in informal discussion of live topics having to do with this new branch of cast iron metallurgy; there will be no papers. No stenographer will be present to take down the discussion because freedom of discussion is the main object of this type of meeting. Not only members of the society, but all others interested in the subject are urged to attend and join in the discussion whether with questions or with comments and criticisms; it is to be a general swapping of experiences.

The chairman of the meeting will be George K. Elliott, Cincinnati, one of the pioneers in this field. Dr. Richard Moldenke, one of the best known of iron metallurgists, will open the discussion. A number of experienced electric furnace operators have promised to attend.

High-Voltage Automatic Compensator

An automatic high-voltage compensator has been placed on the market by the Electric Controller & Mfg. Co., Cleveland. This compensator is built for voltages of 2500 and below. It is push button operated and entirely automatic. With the exception of the overload panel, which is mounted on the top of the tank, the compensator is entirely submerged in oil and the tank is so designed that the compensator is dust-proof,



Inside View of High-Voltage Automatic Compensator Designed to Give the Motor Continuous Torque from Start to Full Speed

weather-proof, vapor-proof and fire-proof. It can be installed either indoors or outdoors.

A push button is operated by an independent low-voltage circuit taken from an independent transformer, so that there is no danger of the operator coming into contact with the high-voltage circuit. Having the starting transformers and the operating mechanism entirely submerged in oil, and automatically operated, removes all possibility of explosions or high-voltage flashes.

This automatic compensator is so designed that continuous torque is applied to the motor from the time the push button is pressed until the motor has been brought up to speed. Operating the starting switch causes the motor to be started under reduced voltage obtained from the transformers in the compensator and, after the motor has reached the proper and safe speed, it is automatically thrown across the line by the compensator.

July Imports of Pig Iron and Other Materials

Department of Commerce figures show imports in July of 13,511 tons of pig iron, valued at \$217,336, or an average of \$16.09 per ton. Imports of scrap amounted to 1038 tons, valued at \$17,365, or an average of \$16.73 per ton. Imports of ferromanganese, manganese metal and alloys amounted to 892 tons, valued at \$90,700, or an average of \$101.69 per ton. Imports of ferrosilicon amounted to 1,216,988 lb., valued at \$58,352, or an average of 4.8c. per lb., and 22,173 tons of manganese ore, valued at \$562,493, or an average of \$25.37 per ton.

All of the ferrosilicon came from Canada. England supplied 861 tons of the ferromanganese; the remaining 31 tons came from France. Canada supplied the great bulk of iron and steel scrap, with 896 tons. Manganese ore, to the extent of 8599 tons, came from Rus-

sia, 6964 tons from British India, 3505 tons from Brazil, 3103 tons from Turkey, and 2 tons from Germany. Of the pig iron imports, British India supplied more than half, with 7414 tons. Holland furnished 3427 tons, presumably a transshipment from Germany. England sent 1125 tons, while smaller quantities came from other countries.

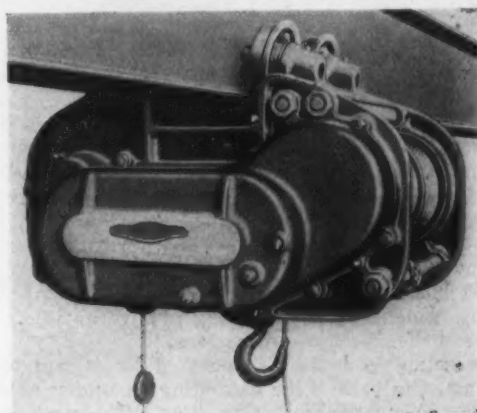
Grounding Foundry Vibrator Recommended

A hazard of the foundry vibrator used for riddling sand was recently emphasized by the safety division of the Milwaukee Association of Commerce. It appears that the insulation of the electrical connections is at times broken down, resulting in making the metal frame alive, in electrical parlance. The safety measure suggested is that the metal frame should be electrically connected to a water-pipe "ground," using a three-conductor cord and a three-contact polarity-type plug and receptacle. This receptacle should be mounted on the wall and a counter-weight provided to take up the slack. With this arrangement a defect in the insulation will reveal itself by a blowing of a small fuse in the particular circuit, thus preventing shock to the workman.

New Hoist for Minimum Headroom

The American Engineering Co., Philadelphia, has placed on the market a new "Lo-Hed" hoist, in which the distinguishing feature of ability to operate in a minimum headroom has been retained in a small, light hoist for all-around general utility use.

Built in $\frac{1}{2}$ -ton and 1-ton capacities, the new hoist is of the electric monorail type. Its ability to draw up the load block until the block almost touches the rail makes it available in places where the headroom is too small to permit the use of any larger hoist. It gives ample clearance to bulky loads over congested floors; it makes it possible to pile materials high, thus greatly increasing the storage space of warehouses; and it will



Three-Quarter View of the "Lo-Hed" Hoist, Showing How Closely the Hook Comes to the Supporting Rail

give added safety in many cases because of the greater clearance of the load.

With a mechanical efficiency of 80 per cent, roller bearings and automatic Alemite lubrication reduce friction to a minimum. Operation is safeguarded by automatic lowering and holding brakes and a device that checks the hoist and throws off the current at the upper limit of travel. A safety factor of at least five makes overloads practicable in emergencies. All working parts are completely accessible, and if necessary the motor can be removed without touching the load on the hook.

These hoists are furnished for either direct or alternating current. They travel on standard I-beams, around curves and through switches. Their simple, rugged construction augurs long life and few repairs.

Hydraulic Straightening Press

R. D. Wood & Co., Philadelphia, have brought out recently a new hydraulic straightening press designed for straightening steel castings quickly and economically. This tool is of the open gap type, having one vertical ram and one horizontal ram of 300 tons capacity each. The gap of the press is 48 in. and the daylight 36 in. The table dimensions are 12 x 15 ft.

The press housing is of box section in a single steel casting, cast integral with the two cylinders, which are provided with seamless copper liners, spun into place by means of a special tool. The rams are made of close grained semi-steel, ground accurately and polished. They are provided with inside cup leather packings which can be renewed quickly in case of wear.

This press is designed to operate on a working pressure of 1500 lb. per sq. in., as this is a standard line pressure in many industrial plants; hence this

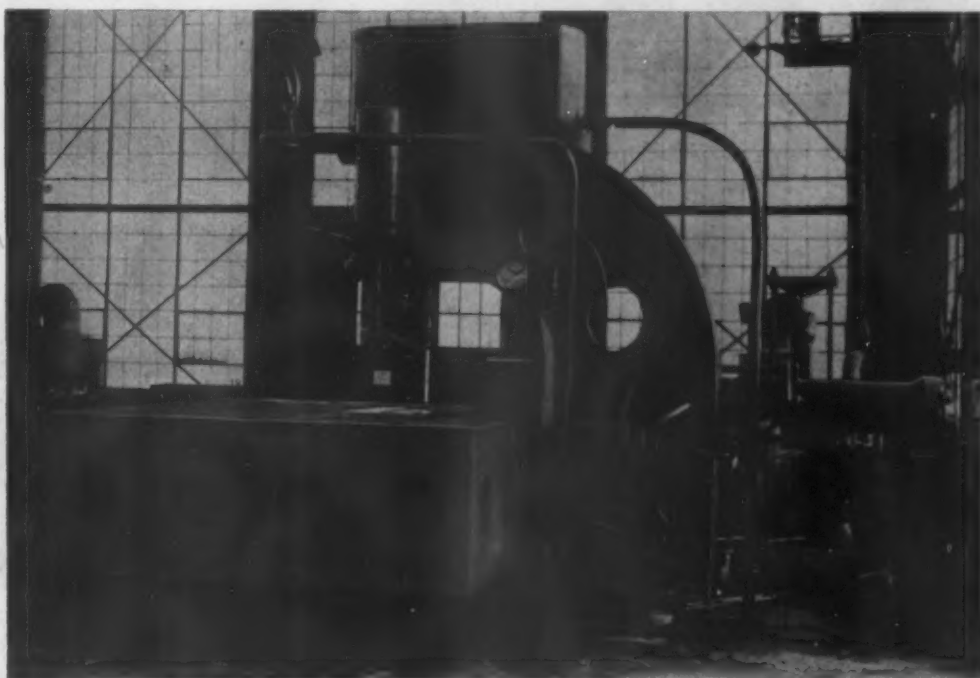
Buyers of Castings Asked to Estimate Weights

The members of the National Founders Association have received a letter from A. E. McClintock, commissioner of the association, on the subject, introduced recently by Thomas E. Durban, Erie Forge Co., Erie, Pa., of having blueprints that are sent to foundries for estimating purposes contain information of estimated weights. The letter is as follows:

This association, together with several others, has been requested to join in a movement to require designing engineers to put the approximate weight on all blueprints sent out for bids. This would mean a considerable saving of time and expense to foundries doing jobbing work.

When the design is originally made, it is necessary that weights be figured in order to get at the approximate cost. These weights could be used in all cases where the per pound

Hydraulic Straightening Press Operated Directly from the Accumulator. Special means to conserve high-pressure water is a feature



machine can be operated directly from the accumulator line. Otherwise it will be equipped with an independent motor-driven pump.

This press is equipped with a slack water filling system, consisting of a filling tank located on top of the housing and necessary filling check valves, so that both main rams can be brought up to the work by means of slack water, and therefore pressure water will be used only for doing the actual straightening work. This, of course, saves a considerable amount of pressure water.

The table, made of open-hearth cast steel, is equipped with accurately machined pin holes 8 in. in diameter. This table is attached to the housing by machined tongue and groove joint and securely held in place by heavy steel bolts and steel nuts.

The National Research Council, established in 1916 by the National Academy of Sciences and organized with the cooperation of the national scientific and technical societies of the United States, now occupies its new building in Washington at B and Twenty-first Streets. The council, which had such a conspicuous part in the promotion of the fighting machine of the United States in the late war, has lately been notably active in highway research, being the nucleus of the activity of some forty state highway commissions.

price is quoted and make it possible greatly to expedite quotations.

The statement is made that in many foundries much unnecessary delay and expense is entailed due to the necessity of being required to figure the weights from a large number of blueprints.

We believe that if this suggestion should be generally adopted and become a standard practice, it would result in the elimination of an item of unnecessary expense.

A gas holder of which the bottom and roof will be welded is to be built at Miami, Fla., by the Chicago Bridge & Iron Works for the Electric Bond & Share Co. It will have a capacity of 1,000,000 cu. ft. and require approximately 1000 tons of plate work. An oil storage tank of 240,000 gal. capacity is to be placed inside the holder.

A meeting of the administrative board of the American Engineering Council, which holds open meetings, has been called for Oct. 17 and 18 in Chicago. The board will convene at the headquarters of the Western Society of Engineers, President James Hartness presiding.

A Duplicating Punching Machine

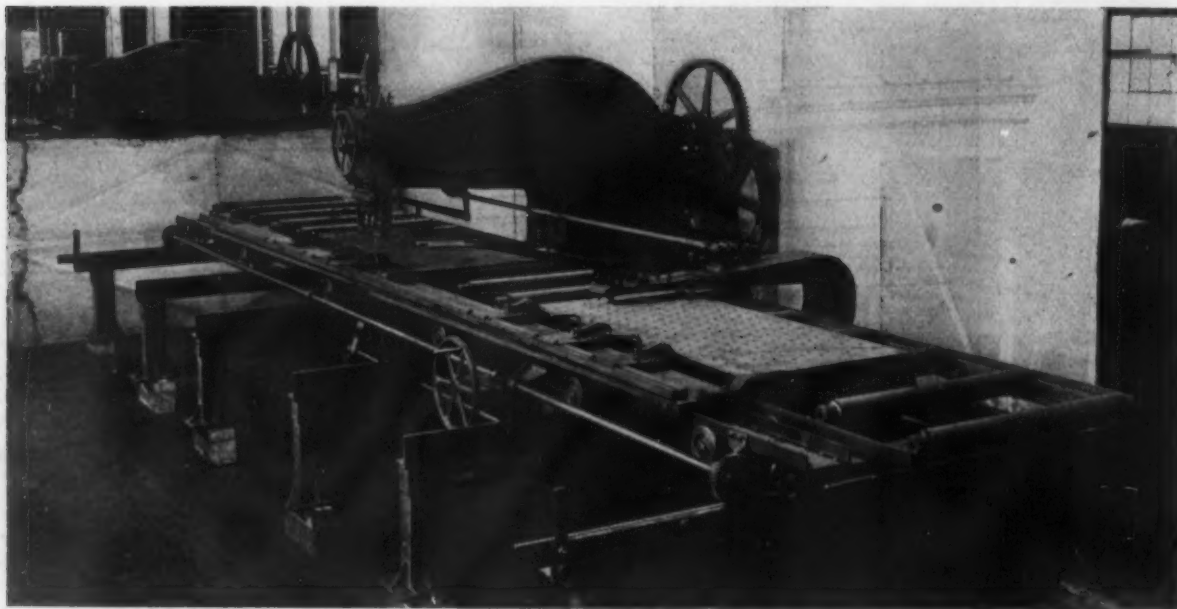
Introducing many novel features, the "Duplikator" illustrated is an interesting new development in punching machines. It was developed by George P. Thomas and will be marketed by the Thomas Co., 1026 Fulton Building, Pittsburgh. It is designed for punching holes in plates or sheets and eliminating the necessity of marking. It is intended for work too small or too irregular to handle on a spacing table or where the number of pieces will not warrant setting up for multiple punching or providing a special set-up.

As its name implies, it will duplicate the holes in a plate from a templet or pattern. Ordinarily the first plate is punched and used as a templet and can be prepared on the machine itself. The machine illustrated will handle plates up to 4 ft. wide and 10 ft. long and up to any thickness or down to any thinness, according to the capacity of the punch. The material may be of

rack and pinion. Thus the templet and material are controlled transversely on table and longitudinally by the guide rail.

For locating, hand levers are used, placed at one side of the punch. There are as many levers as there are tools on the punch and each can be set for punching a different diameter hole. By pulling down one lever the pointed center enters the hole in the templet. It is not necessary to bring the templet exactly to the center of the pointer, as the table will center itself in forcing the lever downward. This movement also controls the gage on the punch and operates the clutch by means of a solenoid. Each hand lever thus positions the table, operates one tool on the punch and throws the clutch, simultaneously.

The rolls on each side of the dies are mounted on springs and can be adjusted vertically to permit material to ride free of dies. In a similar way the rolls supporting templet under centering levers are located close



With Its Motion Controlled by the Hand Wheel and the Long Handle Running Along the Front Edge of the Table, This Machine Duplicates in One Plate the Punchings in Another, Either One or More Holes Being Made at Each Motion

any shape desired. The widest plate that can be punched on any punch is about 5 in. less than the depth of the throat.

One feature is the ease and simplicity for handling material on and off. The time for this, which is just as important as the punching operation, is cut down to the minimum. The table can be applied to almost any punch already installed, by providing the special tools and electrifying clutch.

Several Holes May Be Punched at One Setting

Two tools are shown on the punch, indicating that two different size holes may be punched without resetting. This can be increased, if desired, to four or more under special conditions and the holes may be round, square or slotted. The table itself runs transversely to the punch and is kept in alinement by means of racks and pinions located on the rails at each end. These racks are used also for propelling the table by means of a hand wheel. On the transverse table are mounted flat rolls to support both the templet and the material, also the guide rail running at right angle to the table and supported on small flanged wheels. To the guide rail are mounted flexible clamps and limit gages for locating and attaching the templet and the material to be punched.

The transverse motion of the table is by means of the hand wheel and the guide rail is controlled by means of a longitudinal handle. On the larger machines this longitudinal handle is replaced by a second hand wheel which controls the guide rails by means of

together, to avoid sagging of templet under pressure of centering.

Disposing of Punched Plates

After a plate is punched, it is necessary only to release the quick closing clamps and roll it off the table and go on with the next one. The jaw of the clamps and limit gage permits locating the plate in proper position without loss of time.

To change from one job to another, it is necessary only to change the templet and put on the desired sizes of punches and dies and shift the limit gages.

The machine is designed for use in steel car shops, structural and bridge shops, boiler and tank shops, plate and sheet iron works of all kinds and for punching coal screens and material of similar nature. While it is designed for flat work, plates with raised surfaces or flanges can be punched, also webs of shapes such as angles or channels. A record of 14,000 holes in 9 hr. on steel car work has been established. American and foreign patents, granted and pending, cover the machine.

The William B. Pollock Co., blast furnace builder and fabricating interest at Youngstown, is rebuilding two blast furnaces in the Haselton group of the Republic Iron & Steel Co., and is completing the reconstruction of a stack at North Tonawanda, under control of the America Radiator Corporation.

Corporation Abandons Pittsburgh Plan

(Continued from page 750)

The commission also has made it known that it is not concerned as to the attitude of the independent iron and steel companies. The claim is made that they not only are expected to follow the policy determined upon by the Steel Corporation, but will be compelled to do so. The prompt and voluntary statement of President E. G. Grace of the Bethlehem Steel Corporation that Bethlehem plants would follow the Steel Corporation course was nevertheless a source of gratification to the commission. Going further, it is the belief of the commission that all industries using basing points will now fall into line and adopt the Steel Corporation policy. It is stated that with this in view the cement industry already had taken up such a suggestion with the commission.

The Pittsburgh plus case itself has been so long-drawn out that during the intervening period there have been some notable readjustments as to markets and capacities of the steel industry and those who have seen the proceeding as being more or less academic have insisted that these changes arising from natural causes were themselves answering the complaint made. They point, for instance, to the fact that Chicago long has been a basing point on plates, shapes and bars, and was working more and more with its growth as a steel center to a basing point in other lines of output. But once the contest set in before the commission, the Steel Corporation and the commission through its representatives vigorously pursued their contentions. Except for irritation now and then between the contesting attorneys, mere oral clashes that quickly arose and as quickly were forgotten, the case was marked by good natured rivalry and patience and presided over with intent to be fair by Examiner J. W. Bennett, who, it was plain, believed it was proper to admit every possible pertinent detail from the great array of witnesses, including consumers, manufacturers, economists, statisticians, industrial paper editors, etc.

The Attorneys in the Case

The burden of the legal end for the commission was taken up by Attorney K. E. Steinhauer, who worked zealously and intelligently, and up to the latter part of the case was ably assisted in examining witnesses by Eugene W. Burr. Throughout the proceedings the great volume of statistics and exhibits for the commission was prepared under the supervision of H. E. White, to whom much credit has gone for the manner in which the commission's side was presented. The prominence of the case attracted attention of the entire country and it is held to be the most important ever coming before the commission. Middle Western States through their legislatures took a hand in the case and joined with Western Association of Rolled Steel Consumers in the fight and retained the association's attorney, H. G. Pickering, to represent them and the brief he filed in the case is ample proof of the high class services he rendered his clientele.

For the Steel Corporation, the proceedings originally were intrusted largely to one of the most outstanding members of its regular legal staff, Cordenio A. Severance, who was compelled to retire from active practice owing to ill health. Richard V. Lindabury, the distinguished general counsel of the Steel Corporation, was in charge throughout and was especially active in the final arguments, but the great burden of the work fell upon W. W. Corlett, who succeeded the late Raynal W. Bolling, general solicitor of the Steel Corporation, who was killed in the World War in April, 1917. Mr. Corlett found the task so absorbing that he resigned as general solicitor last year in order to give his entire time to the one case. He now expects to engage in

private practice. Mr. Corlett was present at all the proceedings in different cities, was untiring in his vast work, well-poised at all times and searching but fair in the examination of witnesses. The knowledge of the steel trade, its practical operations, and the Pittsburgh base practice itself revealed by Mr. Corlett was at once a source of frequent surprise and constant admiration.

Counsel for the Steel Corporation carried out fully its purpose to present its views thoroughly and to thresh the case out to the minutest detail before the commission. Chairman E. H. Gary of the Steel Corporation had gone on record in favor of this plan and as one of the most prominent witnesses he testified frankly, fully and most interestingly. It is no secret that he gained the warmest respect of the commission and its representatives because of his sincerity.

Appeal Was Expected

Throughout the hearing it was the strong belief generally that the Steel Corporation proposed, if necessary, to take the case to the United States Supreme Court so as to get a final interpretation of the law. It was the contention of the Steel Corporation that the commission was without authority in the case and its answer is evidence that it is still of that opinion, an opinion, by the way, shared by one of the commissioners, Nelson B. Gaskill. Whether or not the compliance of the Steel Corporation was due to a desire to meet apparent public sentiment or whether it felt that the value of the law was largely more of a theoretical than a practical nature is not known. But it had previously been thought that as a matter of determining the rights of trade through high court authority as pronounced under the Federal Trade Commission and Clayton acts, particularly the latter, the Steel Corporation would take the case to the courts. Indeed, it is known that there were those associated with the Federal Trade Commission who had up to the last moment assumed that as a matter of course the Steel Corporation would appeal the case. It is considered significant in this connection that Attorney Steinhauer, who had been in the West, had started his journey back to Washington before the answer was received. In view of the nature of the answer, however, he did not reach Washington until last Saturday. As another incident it is interesting to observe that Chairman Thompson and Commissioner Gaskill are the only present members of the commission who voted on the original application for a complaint, Mr. Thompson favoring and Mr. Gaskill opposing its issuance.

Little Effect on Prices Expected at Cleveland

CLEVELAND, Sept. 22.—The abandonment of the Pittsburgh base by the Steel Corporation has developed a situation in this territory which may take several weeks to clear up. The present leading independent producers including Cleveland, Valley and other Ohio mills have not decided what policy they will adopt in respect to the elimination of the Pittsburgh basing point and have made no changes in their manner of quoting. However, it seems safe to predict that independent mills generally, except those located in Pittsburgh, will abandon the Pittsburgh base. Whether they will quote a delivery price on each inquiry or an f.o.b. mill price, is yet to be determined. If the latter plan is adopted, the consumer will have to figure out freight rates from shipping point in order to determine which price is the lowest. Both the Carnegie Steel Co. and the Bethlehem Steel Co. are now quoting delivery prices in this territory and some of the steel salesmen in talking to customers have ceased to mention the Pittsburgh base price and are talking only delivery prices.

The attitude of the Youngstown district mills is

being watched with much interest. If these mills adopt a Youngstown base, this base will have to be about \$2 a ton higher than the Pittsburgh base to keep their delivery prices the same as that of the Pittsburgh mills for Cleveland delivery. If they quote the same delivered prices as the Pittsburgh mills, they will also be enjoying the same price advantage in respect to Cleveland deliveries by reason of their location. The problem is more complicated when applied to some of the Ohio mills having more than one plant in different sections making similar products.

While there is still a great deal of uncertainty how the abandoning of the Pittsburgh basing point will finally work out, steel men and consumers seem generally agreed that it will have very little effect on the general price situation. In other words, the cost of

steel to consumers will be determined by market conditions and competition whether there is only one or any number of basing points, although there is a possibility that when there are various basing points, prices will be more irregular in a weak market.

Cleveland consumers do not look for much benefit from the elimination of Pittsburgh basing, although the Cleveland Chamber of Commerce, through a special committee last year, investigated this subject and in a report found that at least \$1,500,000 of fictitious freight charges are imposed annually on Cleveland companies by the strict maintenance of the Pittsburgh base. The committee, however, admitted that the base was not being strictly applied and the total amount should be reduced because part of the steel shipped to Cleveland is rebilled to ultimate consumers.

American Steel & Wire Co. Names New Prices

Pittsburgh, Cleveland, Chicago, Birmingham and Worcester Are Made Basing Points—New Quotations Lower Than Recent Pittsburgh Plus Prices

CHICAGO, Sept. 23.—In compliance with the recent announcement that the subsidiaries of the United States Steel Corporation still adhering to the Pittsburgh basing point practice would abandon it, the American Steel & Wire Co. has announced new prices. As thus far outlined, five separate basing points are provided, at Pittsburgh, Cleveland, Chicago, Birmingham and Worcester respectively. The base prices at Pittsburgh and Cleveland will be identical, while the base prices at the other three cities will be 15c. higher, and delivered prices in the city of Chicago will be 15c. higher than at Cleveland and at Pittsburgh. Base prices at Chicago district mills, namely, the Waukegan, DeKalb and Joliet plants, will be only 10c. higher. This arrangement is to take care of the average freight charge, about \$1 a ton, from the mills to Chicago, there being no company plants in that city.

The new prices at Pittsburgh and at Cleveland are 5c. per 100 lb. lower than the Pittsburgh base prices recently observed. Thus wire nails are quoted at \$2.75 per keg at Cleveland and Pittsburgh, \$2.90 at Chicago and \$2.85 at Chicago district mills.

The new prices thus far announced at Pittsburgh and at Cleveland are as follows: Wire nails, base per keg, \$2.75; bright plain wire, base, No. 9 gage, per 100 lb., \$2.50; No. 9 galvanized wire, base per 100 lb., \$3.10; annealed fence wire, base per 100 lb., \$2.65. Galvanized barbed wire, base per 100 lb., \$3.45; galvanized staples, base per keg, \$3.45; polished staples, \$3.20 base per keg; painted barbed wire, base per 100 lb., \$3.20; cement coated nails, base per count keg, \$2.15. Quotations on woven wire fence and bale ties have been reduced accordingly.

In general, prices at Chicago district mills can be arrived at by adding 10c. to the above quotations, while prices delivered at Chicago are computed by adding 15c.

It is to be observed in connection with all these quotations, however, that local prices will be quoted only on commodities actually manufactured at the mills in question. If a given product is not available from Western mills, the consumer will have to pay the freight from the nearest outside producing center. This means that when the capacity of Western plants has been sold, buyers cannot expect to place orders at the same prices with other mills of the company. It is also true that specialties will be quoted only at the plants producing them. The manufacture of specialties is to a large extent concentrated at Worcester, Mass., which will no doubt become a leading basing point on that class of commodities. There were no changes in extras

in connection with the price adjustment on common products outlined above. Independent mills will find it necessary to meet the new prices announced by the Steel Corporation subsidiaries and have announced their intention of doing so.

The capacity of Western mills in common wire products is larger in proportion to demand than in sheets. In both cases, however, Western producers will be in a position to pick their business, during periods of normal demand, leaving less desirable orders for outside mills to fill. This situation, if it develops, may be rectified in time, through the enlargement of Western producing facilities. Inasmuch as the Steel Corporation is not yet operating a tube mill in the Chicago district, the Gary tube plant still being in the process of construction, there is no immediate prospect of an announcement of Chicago base prices on steel pipe. Tubular products were not included in the list of commodities covered in the Federal Trade Commission's order but were nevertheless specifically mentioned in the corporation's reply. From the latter it is gathered that Chicago base prices may be expected with the completion of the Gary pipe works. Plates, shapes and bars, of course, have been on a separate Chicago base for the past three years and latterly the same has been true of hot-rolled strip, and cold-finished steel bars. Billets have also been quoted f.o.b. Chicago, generally at the same price as at Pittsburgh.

No Important Offices in the South

BIRMINGHAM, ALA., Sept. 23.—Conformity with the order to cease and desist from the Pittsburgh plus plan of fixing prices on steel, issued by the Federal Trade Commission, will bring about no material change in conditions in the Birmingham district. The Tennessee Coal, Iron & Railroad Co. has not enforced the Pittsburgh plus price making in this district for several years. Consumers state that in some instances they have been able to get steel at practically Pittsburgh prices, and others say that delivery charges in the district only have been added.

The Birmingham district became involved in the protest on the Pittsburgh plus price-making plan in 1919 through activity of the Birmingham Civic Association, an organization akin to a Chamber of Commerce. The steel consumers of the West, who led the fight, were advised of the activities here and Chicago, Duluth and Birmingham were named as the principal centers entering the objection to the Pittsburgh plan. It developed that the Birmingham district steel consumers had never been taxed the full Pittsburgh plus price or, if so, only for a very short period, and as the steel industry developed here, a mill price was

set. The prices in Birmingham evidently did not cause any real hardships as, in testimony offered at hearings and in other statements, it was asserted that the Steel Corporation here had treated its customers with consideration.

The Gulf States Steel Co., independent, has had no comments to make on the announcement that the Steel Corporation subsidiaries would in so far as possible carry out the orders of the Trade Commission. President Charles A. Moffett said there was nothing to comment and "the Gulf States Steel will continue to

meet competition." During the hearings on the question the Gulf States Steel Co., through high officials, took the ground that Pittsburgh plus as practiced in this section (a home-made price) was not detrimental to the trade. Stabilization of the steel trade was pointed to in some of the testimony given.

Consumers of steel in this district—structural steel fabricators, manufacturers of tanks and others—are positive there can be no material change in the general conditions here as a result of the intention of carrying out orders.

Pittsburgh Fears Localization of Steel Business

National Tube Co. Announces Prices Will Be Based on Two Points of Manufacture—Uncertainty as to Sheets

PITTSBURGH, Sept. 23.—Localization of business is feared by independent steel manufacturers, notably those whose plants are located outside of the Pittsburgh district, as the probable result of the decision of the Steel Corporation to abide by the order of the Federal Trade Commission in respect to billing shipments solely on a Pittsburgh base. Although not specifically mentioned in the Federal Trade Commission's order, independents regard themselves as bound by the order. In the first place, to go contrary to the instructions given the Steel Corporation as respondent in the action it is believed would invite action by the commission against the offending independent company. But a more important consideration is that the Steel Corporation is regarded by all other companies as a competitor and if it elects to quote on a delivered price basis or f.o.b. mill, it would be difficult, if not impossible, for independent companies to successfully compete unless they do likewise.

Independent manufacturers are guarded in their comments and estimates of the ultimate effect on the corporation's course. Indeed, most of them are inclined to withhold opinions until the prices and methods of quoting of the Steel Corporation subsidiaries are

fully known. So far there has been no definite information here, except on pipe.

There was no announcement from the Carnegie Steel Co. and the American Sheet & Tin Plate Co. officials stated that the widely scattered location of its plants made necessary more time for the working out of a plan. The National Tube Co., having plants only in the Pittsburgh district and Lorain, Ohio, had a relatively simple plan to evolve. Announcement follows:

"Effective Sept. 22, 1924, the National Tube Co. will abandon its practice of selling its goods on the basis of Pittsburgh plus. Hereafter our prices will be based on the point of manufacture by us having the lowest rate of freight to destination, and delivered prices will be computed on this basis. We have two points of manufacture, namely, the Pittsburgh district and Lorain, Ohio, and sales hereafter will be made at delivered prices based on whichever point has the lowest rate of freight to destination. Such classes of materials as are manufactured by us at one point and not at the other will be priced on the basis of freight from manufacturing point to destination." In addition it was announced that prices at Pittsburgh and Lorain would be the same.

Bethlehem Announces New Selling Policy

Plans of Other Companies in Eastern Pennsylvania Not Clearly Defined—Some Customers Will Probably Be Disappointed

PHILADELPHIA, Sept. 23.—None of the mills of the eastern Pennsylvania district, with the exception of the Bethlehem Steel Corporation has taken action regarding the adoption of the mill basis of quoting to customers in line with the announced action of the United States Steel Corporation.

President Eugene G. Grace of the Bethlehem Steel Corporation announced last week that his company would follow the lead of the Steel Corporation in abandoning the Pittsburgh price base. The assumption on the part of some consumers that Bethlehem will quote plates, for example, f.o.b. Coatesville, Sparrows Point, Johnstown or Buffalo probably is not correct, as present indications are that Bethlehem will quote all of its products on a delivered basis regardless of the location of the mill from which they are to be shipped.

The principal products of the eastern Pennsylvania mills are plates, structural shapes, bars and sheets. On these products their chief competition is from mills in the Pittsburgh district and it is quite obvious that the Eastern mills will continue to obtain the best possible market prices based on costs and competition.

One sales department has received telephone calls from several of its customers, who were of the opinion that this Eastern mill would use the current Pittsburgh

quotation as a mill quotation, thereby giving to the customer the advantage in freight it now enjoys. This misapprehension on the part of consumers, if at all general, is apt to cause considerable dissatisfaction, and sooner or later it will be claimed that the abandonment of the Pittsburgh basing has brought little or no advantage to the consumer in actual cash savings. The fact that the American Steel & Wire Co. will have five separate basing points for wire products does not necessarily mean that the same conditions will prevail in plates, shapes, bars, etc., in which conditions are somewhat different.

Independents Under No Obligations

Independent companies are under no obligations to follow the lead of the Steel Corporation and will only do so as competition or the changing of trade customs make such change necessary or advisable. Of the Eastern mills aside from Bethlehem, the Lukens Steel Co., Central Iron & Steel Co., Alan Wood Iron & Steel Co., and the Worth Steel Co. have made no change, although some of them will perhaps quote delivered prices rather than f.o.b. Pittsburgh prices. In fact, this method has been followed for some time by the Bethlehem Steel Co., the Eastern Steel Co. and the Pencoyd mill of the

American Bridge Co. This means that if the current price of a certain steel product is 2c., Pittsburgh, the delivered price quoted to Philadelphia consumers will be 2.32c., the freight rate from Pittsburgh being 32c. per 100 lb. on finished steel. In some quotations the phraseology, "freight equalized with Pittsburgh" is used, but this may be dropped in favor of "delivered Philadelphia with freight allowed to destination." The actual working out of this method is as follows: The Bethlehem Steel Co., for example, quotes a Philadelphia customer 2.32c. per lb., delivered Philadelphia, on structural shapes. The actual freight rate from Bethlehem to Philadelphia is 13c. per 100 lb. In invoicing the shipment, the Bethlehem Steel Co. bills the customer at 2.32c. per lb. and then deducts 13c. per 100 lb., leaving a net price at mill of 2.19c. per lb. This the customer pays and in addition pays the actual freight upon the material, 13c. per lb. In this way the steel companies have avoided the risks of shipment, the material becoming the property of the consignee the moment the shipment leaves the mill. Thus the mills have not been obliged to prosecute claims for damage in transit, etc., this being done, when occasion required, by the customer.

Youngstown Independents Follow Steel Corporation

YOUNGSTOWN, Sept. 22.—Considerable disappointment is expressed by independent steel manufacturers over the decision of the Steel Corporation to comply with the Federal Trade Commission's order in the Pittsburgh basing point case, although such a decision was not a surprise to those who recalled that the Steel Corporation is susceptible to public opinion. Independent manufacturers had hoped that the corporation would take the matter before the courts for a review and definition of the legal powers of the Federal Trade Commission. But since the corporation elected to do otherwise, they will go along, not because they regard themselves as legally bound to, but purely on the grounds of competitive considerations.

Rate on Manganese Steel Scrap Declared Unreasonable

WASHINGTON, Sept. 23.—Passing upon a complaint of the Manufacturers' Association of Chicago Heights, Ill., a voluntary organization, the Interstate Commerce Commission has handed down a decision holding that the rate of \$9.05 per gross ton on manganese steel scrap in carloads from Newcastle, Del., to Chicago Heights is unreasonable and prescribing a rate of \$6 a ton, effective Nov. 10. The rate prescribed is that requested by the complainants.

The plant and equipment formerly used by the Hess Steel Corporation, Loney Lane and Pennsylvania Railroad, Baltimore, have been taken over by the Carbon Steel Corporation, the officers of which are former Pittsburgh men. John Robinson is the president and general manager and George Frankovich is treasurer. The plant is to be put into operation about Oct. 1 with the opening of the 9- and 14-in. mills, to be followed later by the 20-in. mill. To begin with about 75 men will be employed at the plant, but this number is to be increased later to about 300. The plant will be used for the manufacture of concrete reinforcing bars and all kinds of soft steel bars.

The Strand & Sweet Mfg. Co., Winsted, Conn., wire, is constructing a plant addition which will be equipped with 12 wire drawing machines. With added facilities the company's annual output will, it is expected, approximate 2,000,000 lb. The company is working on a 50,000 lb. order for England.

Bonds Issued by Warren Foundry & Pipe Co.

For the purpose of acquiring the capital stock and bonded debt of the Wharton & Northern Railroad and the Empire Steel & Iron Co., the corporate existence of which has continued, although the company has been owned by the Replogle Steel Co., the Warren Foundry & Pipe Co. has issued \$2,500,000 of first mortgage, 15-year, 6½ per cent sinking fund gold bonds through Peabody, Houghteling & Co., New York. The bonds are secured by a closed first mortgage on all the fixed assets of the consolidated companies in the Warren Foundry & Pipe Co., including the entire capital stock and bonded debt of the Wharton & Northern Railroad Co.

The blast furnace at Catasauqua, Pa., and ore fields at Catasauqua, Oxford and Mt. Hope, N. J., will be leased to the Replogle Steel Co. for a term of years beyond the maturity of the bonds, on a rental basis sufficient to pay operating charges, depreciation and taxes on these properties, plus a royalty of 25c. per ton on all ore shipped from the mines, together with a royalty of \$1 per ton on all pig iron put through the blast furnace at Catasauqua. The consolidated company covenants to pay to the trustees as an additional sinking fund payment, 10c. of the ore royalty of 25c. per ton.

Iron and Steel in Canada

Reports to the Dominion Bureau of Statistics show August production of pig iron in Canada amounting to 23,072 gross tons, which is 49 per cent less than the 45,480 tons produced in July. The current figure is the lowest tonnage reported for any month since the beginning of monthly records in 1917. Ferroalloys produced in August amounted to 2195 tons, compared with 2197 tons in July. For the first eight months of the year, pig iron production has aggregated 495,658 tons, of which 334,083 tons were basic, 118,865 tons were foundry, and 42,710 tons were malleable. Total ferroalloys in the first eight months amounted to 20,160 tons.

Steel ingots produced in July amounted to 21,419 tons. Adding 1317 tons of steel castings, the total steel production becomes 22,736 tons. This compares with 50,469 tons of ingots and 1768 tons of castings in July, a total of 52,237 tons. For the first eight months the total ingot production was 541,439 tons, while castings amounted to 22,267 tons, a total of 563,706 tons. Of the castings 4310 tons were produced in the electric furnace. The production of steel is the lowest reported since May, 1922.

Canadian Scrap Market

TORONTO, ONT., Sept. 22.—While the demand for iron and steel scrap has fallen off slightly during the past week or ten days, business covering the past month has been more active than that for any corresponding period this year. During the past three or four weeks many melters have come forward with contracts covering last quarter requirements, but according to local dealers there is still considerable tonnage to be placed on this account. The spot demand also showed improvement and the general movement of scrap of practically all kinds became more active. Dealers' buying prices, which came into effect a short time ago, are showing strength, as follows:

	Gross Tons	
	Toronto	Montreal
Steel turnings	\$9.00	\$8.00
Machine shop turnings.....	9.00	7.00
Wrought pipe	6.00	7.00
No. 1 wrought scrap.....	12.00	12.00
Heavy melting steel.....	11.00	10.50
Steel axles	16.00	18.00
Axles, wrought iron.....	19.00	20.00
	Net Tons	
Standard car wheels.....	16.00	14.00
Malleable scrap	14.00	15.00
Stove plate	14.00	13.00
No. 1 machinery cast.....	18.00	18.00

Improved Business for Mahoning Valley Fabricators

YOUNGSTOWN, Sept. 23.—Fabricating interests in the Mahoning Valley are benefiting to some extent from the fall buying movement, which is already being reflected in production schedules. Officials of the Truscon Steel Co. state that activity in its standard steel building and fireproofing products departments is about 15 per cent ahead of last month. Ordering is better and production is being well sustained.

Department sales managers report that the field forces are much encouraged over prospective business and work which is actually being awarded.

The General Fireproofing Co. is operating at 80 per cent, and reports acceleration in the demand for fireproofing materials and metal lath, as new buildings under construction are being inclosed.

The Youngstown Boiler & Tank Co. predicts larger operations within a short time than are now being maintained, judging from the volume of inquiry on the part of buyers. Orders are coming from miscellaneous sources for the company's products.

Bookings of Commercial Steel Castings

Department of Commerce reports from 70 companies, representing about two-thirds of the commercial castings capacity of the United States, showed August bookings of 36,363 net tons, or 36.1 per cent of capacity. Railroad specialties, with 14,592 tons, were 37.2 per cent of capacity, while miscellaneous castings, with 21,831 tons, were 35.4 per cent of capacity. Under both classifications the figures were lower than in July and were considerably lower than they were in August, 1923, when the total was 52,805 tons, the railroad specialties being 19,103 tons and the miscellaneous castings 33,702 tons.

The figures for August are the lowest of the past 20 months or more. The highest figures in this period were those for March, 1923, when the total figure was 146,157 tons, or 145 per cent of capacity. This included 77,263 tons of railroad specialties, being 198 per cent of capacity, and 68,894 tons of miscellaneous castings, being 112 per cent of capacity. Only one month of the first six months in 1923 showed railroad specialty bookings less than monthly capacity.

Contracts for Everett Furnace

The Mystic Iron Works, Boston and Everett, Mass., has awarded a contract to the McClintic-Marshall Co. to erect the structural steel required for bins, cast house, boiler house, ladle house, power house and skip incline for the company's blast furnace at Everett. The company also has awarded a contract to William B. Pollock Co., Youngstown, to erect the furnace and stoves and to furnish necessary castings. The furnace and stack will require approximately 1400 tons of plates, and an equal tonnage of structural steel will be used for the other plant units. Work on these contracts will begin early next spring.

The company has completed 25 per cent of its dredging work, and the Aberthaw Construction Co., which has the contract for the furnace foundations, this week began driving piles.

Slight Change in Plate Extras

Carnegie Steel Co. has issued a new card of extras on plates which, although dated Sept. 1, has only just made its appearance. The only change from the old card is that where extras were expressed in percentages of the base price, the new card names a fixed charge per 100 lb.

The new card calls for an extra of 20c. per 100 lb. for plates not exceeding 72-in. wide, less than 3/4-in. gage, to and including 3/16-in. or lighter than 10.2 lb. per sq. ft. to and including 7.65 lb. per sq. ft. and for plates over 72-in. wide, less than 3/4-in. gage, to and including 3/16-in., or lighter than 11 lb. per sq. in. to but not including 7.65 lb. per sq. ft., and 30c. per 100

lb. for plates ordered 7.65 lb. per sq. ft. In the old card the extras were 10 per cent of base in the first two instances and 15 per cent in the latter instance. The old card called for an extra of 25 per cent of the base price for circles; the new card calls for an extra of 50c. per 100 lb.

Automobiles in August

Department of Commerce figures show a production in August of 241,631 passenger cars and 27,484 trucks, an aggregate of 269,115 vehicles from 206 manufacturers. In each class there was a slight gain from July, although each figure was considerably below the corresponding month of last year, in which the production was 314,431 passenger cars and 30,872 trucks.

For the first eight months of the year the production of passenger cars has aggregated 2,285,814 and of trucks 244,373. This compares with the first eight months of 1923, in which production amounted to 2,442,800 passenger cars and 261,741 trucks. The current figure, however, is considerably above that for 1922, when the production for the first eight months aggregated 1,511,169 passenger cars and 162,925 trucks.

Machinery and Scrap Sale Oct. 14 by Navy

An auction of machine tools and iron, steel and non-ferrous scrap will be held at the Navy Yard, Brooklyn, N. Y., at 10 a. m., Oct. 14. Catalogs of the lots offered are now in preparation and will be available on or about Oct. 1. Included in this sale is a wide range of used machine shop equipment, drill presses, grinders, cutters, mandrels, etc. The scrap includes low phosphorus heavy melting steel, cast iron in charging box sizes, trimmings and borings and tin, zinc, lead, aluminum, etc.

COMING MEETINGS

September

American Mining Congress. Sept. 29 to Oct. 4. Annual convention, Sacramento, Cal. J. F. Callbraeth, 814 Munsey Building, Washington, secretary.

National Safety Council. Sept. 29 to Oct. 3. Annual safety congress, Brown Hotel and Hotel Seelbach, Louisville, Ky. W. H. Cameron, 168 North Michigan Avenue, Chicago, managing director.

October

American Electrochemical Society. Oct. 2 to 4. Fall meeting and round-table discussions. Hotel Tuller, Detroit. Dr. Colin G. Fink, Columbia University, New York, secretary.

American Institute of Mining and Metallurgical Engineers. Oct. 13 to 15. Annual inspection trip and meeting at Birmingham. Frederick F. Sharpless, 29 West Thirty-ninth Street, New York, secretary.

American Foundrymen's Association. Oct. 13 to 17. Annual convention, Milwaukee. C. E. Hoyt, 140 South Dearborn Street, Chicago, secretary.

American Gear Manufacturers Association. Oct. 16 to 18. Semi-annual fall meeting, Briarcliff Lodge, Briarcliff Manor, N. Y. T. W. Owen, 2443 Prospect Avenue, Cleveland, secretary.

American Society of Mechanical Engineers. Oct. 20. Management week, New York City. Calvin W. Rice, 29 West Thirty-ninth Street, New York, secretary.

Electric Power Club. Oct. 20 to 23. Fall meeting, Hotel Greenbrier, White Sulphur Springs, W. Va. Headquarters of association, B. F. Keith Building, Cleveland.

Motor Truck Industries. Oct. 21 to 27. First national motor transportation show. American Exposition Palace on Lake Shore Drive, Chicago. Capitol Building, 120 Madison Avenue, Detroit, headquarters.

ASSOCIATIONS APPROVED

Chamber of Commerce Officials Confer with Representatives of the Government

WASHINGTON, Sept. 23.—Preliminary conferences were held today between a committee from the Chamber of Commerce of the United States and officials of the Government to learn, if possible, the view of the latter as to the policy of the chamber regarding trade associations as established as the result of a referendum of members conducted last year by the chamber. It was stated that the Government officials conferred with, including members of the Federal Trade Commission, Secretary of Commerce Herbert Hoover and Attorney Harlan F. Stone, indicated their desire to cooperate with legitimate trade associations and took under consideration data laid before it by the committee. The committee consisted of President Richard F. Grant of the Chamber of Commerce; Milton E. Marcuse, president Bedford Pulp & Paper Co., Richmond, Va.; George Rublee, attorney, Washington, former member of the Federal Trade Commission; Alfred Reeves, general manager of the National Automobile Chamber of Commerce, New York, and Elliot H. Goodwin, resident vice-president of the Chamber of Commerce.

President Grant announced that it is expected to again see the Government officials late in October when it is hoped to have definite expressions from them as to the legality of the trade association activities such as have been given the stamp of approval by the Chamber of Commerce through its referendum, which went overwhelmingly in favor of the activities listed in the referendum as being within the law and in the interest

of the public and business organizations of the United States. The referendum vote went on record in favor of trade associations for each important branch of industry and commerce; trade associations with membership representative of industry in connection with problems affecting the general advance of industry; trade associations prepared to consider all problems affecting the general advance of the industry or branch of commerce represented; trade associations free from special forms of Governmental control; collection of statistics of capacity, production, stocks and sales; collection of actual prices in closed transactions; omission of interpreting statistics; making statistics available to public and Governmental agencies.

The chamber took up the question, it was stated, and is following it out through conference with Governmental officials, because of the apprehension in the minds of business men that every type of trade association was under the legal ban. Court decrees, legislation and other sources dealing with them, it was stated, have led to this view, a view which it was asserted is not well founded. On the contrary, the chamber looks upon trade association work as being of vital importance in eliminating waste, establishing uniform practices in business accountancy, and in establishing ethical conduct, as well as serving public interest, that it is necessary to learn the rights of associations and what they may do without contravening the law and getting the official view of the Government on the subject. Test cases of trade associations, it was indicated, are not favored by the chamber because of the claim that they are laborious, decrees themselves require interpretation and associations do not want to be haled into court even in friendly suits.

BUYERS HESITATE

Many Will Await Developments Due to Abolishing Pittsburgh Plus

YOUNGSTOWN, Sept. 23.—The disposition of steel consumers to restrict their steel orders to current requirements has been strengthened by the uncertainty created by the decision of the United States Steel Corporation to comply with the Federal Trade Commission ruling respecting Pittsburgh price basing. Confusion is certain to be created in the minds of buyers, steel makers point out, and some buying is being held up until consumers know what difference, if any, the change in price policy will bring to them.

Independents foresee an advantage for the Steel Corporation, in quoting mill prices plus freight to point of destination, or in naming delivered prices, owing to the diversified location of its plants, as compared with those of the independents. The larger number of producing plants of the leading interest, located in widely scattered sections, will enable it, independents contend, to compete much more effectively for tonnage, owing to the advantage which it holds from the standpoint of freight charge.

Regardless of the ultimate solution of the problem, it is certain the action of the Steel Corporation, wholly unexpected by the independents, is causing at this time serious concern.

Valley steel producers generally are enjoying a good run of business, despite the fact that the edge has been taken off buying. In some rolled products until recently orders have been received in larger volume than shipments, thus enabling mills to build up somewhat of an accumulation.

Standard steel pipe and wire products have been uniformly shipped promptly, but mills have been less prompt in making shipment of plates, sheets and bars. Due to the close competition for business in the sheet market, observance of prices heretofore regarded as representing the bottom of the market is disappearing. This is particularly true of the small, non-integrated rollers. In order to fill out rolling mill schedules some of the smaller makers have accepted black sheet ton-

nage as much as \$4 per ton below the nominal 3.50c. Pittsburgh market. Concessions in galvanized sheets from the 4.60c. Pittsburgh base price, and in blue annealed from the 2.70c. base, are also noted.

Scrap Shows Weakness

Some of the leading scrap metal buyers are inclined to feel that the recent advance in prices, affecting heavy melting especially, will not hold and that they will be able to buy at the previous levels. Scrap recently mounted from a range of \$18 to \$18.50 to \$19 to \$19.50, and it is reported that a Warren melter paid the higher quotation. While the scrap market is very susceptible to buying influences, it is just as susceptible to lack of buying, and any advance, attributable to one or two heavy orders, will lack sustaining influences unless a general buying movement should occur. In the present condition of the finished steel market, and the uncertainties prevailing, mills are exercising as much caution in obligating themselves on raw materials as consumers are with respect to steel products.

Considered as a whole, finished steel buying shows less strength this month than last, though one of the principal independent makers reports that the two months are about the same.

September freight movement by trunk line carriers serving the Youngstown district, however, is ahead of August, averaging 10 per cent better on a per diem average, despite the Labor Day holiday this month. The figures on loaded freight cars, though, are below those of September, 1923. The Ohio Region of the Erie shows a substantial gain this month over last, but the increase is attributable in part to movement of fruits and merchandise, though the movement of finished steel is also greater.

THE IRON AGE is informed by persons in interest that an erroneous impression was conveyed by a paragraph appearing on page 600 of the Sept. 4 issue referring to the Cooper Brass Works, Ogdensburg, N. Y. We gladly repeat the statement of the treasurer of the company that Mr. Cooper and his associates have paid all creditors in full, and that while the Cooper Brass Works has temporarily stopped operations the plant and equipment remain intact.

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The Passing of Pittsburgh Plus

THE United States Steel Corporation has informed the Federal Trade Commission that it will comply with the commission's order of July 21 to cease from using the Pittsburgh plus system of selling its products. It promises that hereafter it will indicate in all invoices how much is charged for the steel and how much for the transportation of the products, where sales are made at a delivered price, and that it will not sell on any basing point other than that at which the products are manufactured, or from which they are shipped.

Just how much of a reservation is involved in the corporation's statement that it will conform to the order of July 21 "in so far as it is practicable to do so" only actual experience under the new regime will reveal. It is a fair inference, from all that has been published concerning the attitude of the corporation's officers, that compliance with the order is considered expedient, in view of the popular demand for the abolition of Pittsburgh plus, especially in States drawing most of their steel supply from Chicago district mills, and that the corporation chooses, under all the circumstances, to make no test of the legal authority of the commission to require it to quote prices for its steel only at the point of manufacture or warehousing.

The Bethlehem Steel Corporation, as the largest independent company, has announced that it will abandon the use of Pittsburgh basing. Without making public statements, other independent companies have indicated that the Steel Corporation's action practically brings in a new regime for the marketing of steel, and that the conditions under which 60 per cent of the country's output is sold (as represented by the production of Steel Corporation and Bethlehem mills) will naturally determine market conditions for the remainder.

As is shown in detailed reports on other pages, the first effect of the new policy has been a vast amount of confusion. Some products, owing to the market customs of more than a generation, present more complications than others, and in

these more time will be required for adjustment. There is a popular notion that compliance with the commission's order means a general reduction of steel prices, particularly in the Chicago territory. Such a belief is bound to cause disappointment. There is also the impression that under the new regime the Steel Corporation must quote the same price f.o.b. mill in the Chicago district as it quotes in the Pittsburgh district. There is no such requirement in the Trade Commission's order, and on wire products, for which the Steel Corporation already has announced five basing points, higher prices are charged for Chicago delivery than for delivery in Cleveland or Pittsburgh territory.

While Pittsburgh plus has been abandoned, it seems to be overlooked in some of the published comment of the past week that the price a manufacturing consumer pays for his steel has been and will be determined by the location of his plant with reference to a steel mill and by the competition that steel mill must meet from other mills in its effort to get his business. In all the reams of testimony taken in the Trade Commission hearings, there was no conclusive proof that Pittsburgh basing had suppressed competition or had made inoperative the old law of supply and demand. In the period of slack demand through which the steel industry has been passing Chicago prices have tended to approach Pittsburgh prices, so that on many products the readjustment to the new system is already accomplished.

In singling out the steel industry for the imposition of such regulation of selling prices as is now required of no other industry—though the basing point practice prevails in the selling of sugar, lumber, wool, copper, lead, zinc and other products—has the Federal Trade Commission set a precedent which will now be applied in turn to producers in these other lines? And if it now launches upon a campaign for the regulation of other prices by decree, can it count on the same success it has had in the steel case, in having its order obeyed without an attempt to secure a judicial review?

New Complexities in Buying Steel

THE passing of the Pittsburgh basing point practice will introduce new market complexities which will put a premium on skill in buying. The three Steel Corporation subsidiaries most affected by the change—the American Steel & Wire Co., the National Tube Co. and the American Sheet & Tin Plate Co.—have operated in their selling as national units, in contrast with the Carnegie Steel Co., the Illinois Steel Co. and the Tennessee Coal, Iron & Railroad Co., which in the main find their markets in territories naturally tributary to their respective plants.

Under the Pittsburgh base plan the American Steel & Wire Co., for example, would fill an order from any one of its mills which was in a position to make the most satisfactory delivery, and this was done at a uniform price. Thus a Chicago buyer might receive a shipment from Donora, Pa., at the same price that would govern on a delivery from Waukegan, Ill. In effect, all of the producing facilities of the company were pooled to insure customers a maximum of service. At no time was it necessary for a buyer to worry about conditions which might interrupt or delay shipments from the plants in his vicinity; if one mill couldn't take care of him, another would and—what is quite important—at the same price.

A very different régime has been ushered in by the abandonment of a country-wide pricing system. The business of the Steel Corporation subsidiaries in different parts of the country will be localized and the former flexibility in handling orders will be a thing of the past. Accordingly, buyers will find it necessary to watch market conditions much more closely than formerly. If purchases are deferred too long, deliveries may not be available from nearby mills and a heavy penalty will have to be paid in the form of freight from other producing centers. It is easily conceivable that such savings as might accrue from the local price bases would be quickly wiped out through forced purchases in outside markets.

Under the national system of prices the tardy buyer may have found it necessary to pay more than his forehanded competitor, but it is to be noted that all advances were predicated on a single base and the purchasing agent suffered only to the extent that he ignored the warnings of a rising market. Unless he was extraordinarily lacking in market judgment he did not wait until he had to pay a price 34 cents per 100 pounds higher than that paid by his competitor. The figure is used as an example, advisedly, because under the new plan a condition may develop over night which will compel the buyer to pay more than the local price to the extent of the freight from an outside mill. Assuming that he is located at Chicago and finds it necessary to buy from a Pittsburgh plant, his penalty is 34 cents. This very situation occurred for a time in the Chicago market during the second quarter of 1923, when buyers of plates, shapes and bars were forced to place substantial tonnages with outside mills at the Pittsburgh base prices. These commodities, it will be noted, have been sold on a Chicago base by Western mills for the past three years, so that they may well serve as an index of what may be expected in wire prod-

ucts, pipe and sheets. If Western capacity in the last-named products is smaller in proportion to Western demand, the difficulties encountered by the buyer will be that much greater.

Quite another result of the localization of prices will be a restriction of competition. In a given district the number of mills competing for business, under normal conditions, will be only those with plants in that vicinity. Under the Pittsburgh basing plan, all mills in the country were competitors, and there is no doubt that the multiple pressure for business had the effect of driving prices lower in a given market decline than can be expected in separate producing centers with independent bases. The nation-wide price, then, had compensations which tend to offset advantages claimed for zone prices. While, under the new plan, the buyer at Chicago may succeed in placing his tonnage at a price more nearly equal to that prevailing at Pittsburgh, he cannot be sure that the market at Pittsburgh would not have been considerably lower under conditions engendered by country-wide competition.

World Use of Steel Falls Short

IT is nearly six years since the Armistice was signed, yet the steel consumption of the non-producing countries of the world, as indicated by the exports of the countries which lead in steel production, is still considerably below the total of the pre-war year 1913. The comparison is not altogether clean cut, seeing that that portion of the total exports which represents shipments from one producing country to another is not the same today as it was in 1913. For example, Germany sent a great deal of steel into Great Britain in 1913 but very little in 1924. Great Britain sent a good deal of pig iron into Germany in 1913 and comparatively little in 1924. There are always cross shipments of iron and steel between producing countries. However, broadly speaking, the exports from such countries are a fair measure of the consumption in non-producing countries.

The Federation of Iron and Steel Manufacturers of Great Britain has published the figures given below, which represent the average monthly exports of iron and steel products from seven countries, including Luxemburg, in the first half of 1924, also in 1923, comparison being made with the monthly average for 1913.

*Iron and Steel Exports from Producing Countries—
Monthly Averages in Thousands of Gross Tons*

	To July 1, 1924	1923	1913
United Kingdom	337.6	360.0	414.1
United States	156.6	162.1	242.3
France	257.1	181.9	51.6
Belgium	274.2*	307.9*	129.2
Germany	92.8	103.9	517.2*
India	26.1	16.1	8.7
Totals	1,144.4	1,036.9	1,363.2

*Luxemburg included.

Thus it appears that while in 1913 the combined steel exports of the seven countries, including Luxemburg, was 1,363,200 tons a month, the figure for the first half of this year was 1,144,400 tons, or 83 per cent of the 1913 rate. For last year the monthly average was 76 per cent of that for 1913.

The figures for France and Germany are in noteworthy contrast. Whereas France has been

exporting this year five times as much steel as in 1913, the exports from Germany are less than one-fifth those of the pre-war year, when Germany's statistics included the production of Luxemburg. The effect of the competition of Continental Europe is seen in the shrinkage in American exports as well as in the falling off in Great Britain. While India is but a small producer of steel, the increase in its exports is noteworthy.

The figures show that predictions of a great expansion in world demand for steel after the war, based on a theoretical "shortage," on which a number of writers, particularly in England, laid stress, have not been realized. The world's purchasing power was sadly crippled and, for reasons much discussed since the war, a working basis for rehabilitation has been lacking. Now that the way has been opened for economic recovery in Central Europe the outlook for international steel trade is improving. But it remains to be seen, under the present high costs of American mills and the increasing ability of Europe to finance its industries, to what extent the United States can recover the ground it has lost.

Further Readjustment Must Come

IMMEDIATELY after the Armistice the preponderating opinion seemed to be that a general downward readjustment in prices and wages was necessary in order to "get down to a peacetime basis." Then the minority opinion, that we were on "a higher plane" for a long period, grew until it preponderated, and the course of business followed this idea. Prices rose until by June, 1919, they were as high as on Armistice Day, according to the Bureau of Labor index number. They reached their peak nearly a year later, at 22 per cent above the Armistice Day level. Then came a great liquidation. The outs became the ins. Ideas of readjustment and deflation became uppermost in men's minds. The principal debate was whether a short and sharp or a long and mild readjustment would be the less painful.

Since then sentiment has fluctuated less widely. Opinions one way or the other are not so strongly held. There is observable a sort of compromise attitude, that things are not adjusted altogether as well as they might be, but probably they are adjusted well enough; that perhaps what seems out of place appears strange largely because it is new. We ought to allow for new things just as we had to do before the war, and as six years have passed we ought to expect a good bit that is new.

It is true there are many protests, but there is the chance that many people regard these protests more as a sort of propaganda. Plain statistics that the cost of building is too high for the safety, comfort and progress of the whole people may be thought in some quarters to represent merely an effort on the part of employers to pave the way for wage reductions by forcing down the cost of shelter. Arguments that men are not working hard enough or long enough are taken in some quarters as the protest of reactionaries unwilling to fall in line with progress.

Referring to the course of affairs after our Civil War, it was eight years and five months after Lee's surrender that the greatest panic in American history occurred, bringing in the longest and most severe industrial depression, for notable revival did not come until almost six years after the panic.

In that period there were many warnings, but they were not heeded. The dangers in that period were not the dangers we have in our present period. In the statistical records there are various differences. The one outstanding point of similarity is that men were not so prosperous as they thought they were.

Our difficulty today is that we have so many groups, each vociferously contending it is not getting its due, but assuming that the rest of the people are prosperous. Thus the common view is that of prosperity, progress, advancement, merely with certain exceptions, each making his own particular exceptions. If we give each group what it wants we shall simply be worse off, not better.

More production and more economical production, not higher cost production, is the route to the readjustment desired. But what is being urged upon us in behalf of the farmer and other groups is the extension of the favored list, which now includes railroad workers, coal miners, building craftsmen, and some other highly organized workmen.

Perhaps as the groups multiply and enforce their separate demands it will be demonstrated at length that economic laws are still superior to decrees of blocs and of labor unions, and that even a nation will find it hard to lift itself by its own boot straps.

ALIVERPOOL man has patented a method of improving the physical properties of steel by subjecting the bath to a sudden explosive shock immediately before pouring. An explosive mixture is advocated, the amount being "as large as possible consistent with safety." While it is known that there is a wide range to Patent Office possibilities in the United States, our ideas of British practice have been different, and it is somewhat surprising to find that such a freak proposal has received even the semblance of official sanction. The Liverpool inventor evidently has the idea that violent methods are necessary to the successful "killing" of steel.

IN connection with the reports of slackening in the automobile industry, which have persisted for several months, it must not be overlooked that production in that field this year has been the greatest ever known with the exception of last year's. During the first eight months of the year, passenger cars to the number of 2,285,814 have been produced, this being only 6.4 per cent below last year's record-breaking total. The figure in fact is more than 50 per cent ahead of that for 1922, which was by a long margin the highest up to that date. Similarly the first eight months of this year have seen the production of 244,373 trucks. This is only 6.6 per cent under

last year's record total and it is within 15 cars of being 50 per cent more than were turned out in the first eight months of 1922. Thus the much discussed slump merely represents a recession from figures too high to hold, rather than a season of bad business.

A CABLE is now being laid from Rockaway on Long Island to the Azores. Due to the recent discovery of a new alloy, this cable marks a distinct advance in the efficiency of this deep-sea means of communication. At present only two or three cables in existence can transmit as many as 250 letters per minute. The new cable has demonstrated its capacity to carry at least 1500 letters in 60 seconds. The discovery and perfection of a new alloy of nickel and iron, called permalloy, which is wound around the cable, are responsible for this remarkable result. When it is considered that most lines carry but 150 letters a minute and that the best cable now in use does not exceed 300, the extent of this achievement of American research, aided by the use of a special electric furnace can be appreciated. Its economic possibilities are highly important.

CORRESPONDENCE

The Effort to Reopen Trade with Russia

To the Editor: The continued efforts of European countries to arrange with the visionary and impractical Soviet Government of Russia for reopening trade with some degree of security have a very important economic cause. If it were not so, the communists would be left to "stew in their own juice," even though that trifling fraction of 1 per cent of all Russians are holding the mass of their fellow countrymen in virtual beggary, as regards all that civilized man enjoys over the barbarian.

Modern industrial Europe was built up on the exchange of its manufactured goods for agricultural products. Nevertheless, memory is so short that the *Commerce Monthly* of the National Bank of Commerce of New York could say in a recent issue that "Russia has rarely grown more wheat than Russia herself consumes." On the contrary, as much as 25 per cent of the entire Russian wheat crop of pre-war years went to feed Europe outside of Russia. Further, in addition to an annual surplus of about 160 million bushels of wheat, Russia used to export large quantities of rye, barley, oats, and other cereals. All these commodities went to western Europe, and produced a direct trade balance of about three-quarters of a billion dollars, equivalent at present price levels to over a billion dollars. This huge sum was repaid annually by exports of metal goods, machinery, and merchandise from the food-buying countries to Russia.

At present the entire amount of Russian cereal exports has to be replaced by shipments from North and South America to Europe. This condition continually augments the heavy trade balance against Europe, for the Americas are by no means so large purchasers of European manufactures as Russia used to be, and must be again.

Trade between Russia and other nations has been for so long practically suspended that many people have evidently forgotten the enormous importance of Russian business to the trade balances of European countries. Trading with Soviet Russia is no doubt a hazardous and uncertain proposition, no matter what treaties may be arranged with the Soviet Government, which regards all other nations as capitalistic outlaws whom it is no crime to defraud. The real reason why Soviet overtures toward trade relations with other na-

tions are given such patient consideration and discussion, is therefore not merely political expediency, but the knowledge that Russian trade with other nations has been and again must be an important factor in world relations.

So long as the Soviet Government makes it impossible for this trade to move freely as before, so long must the greater portion of the unfortunate inhabitants of Russia continue like savages to till the soil with sticks and roots, and go in rags and unshod; and so long will there be unemployed millions of industrial workers in western European countries. American manufacturers, who sell in the world market in competition with those of Europe, are equally concerned in the change of heart and policy that must at some time come about in the rulers of Russia, whoever these may be.

R. MARTENS.

Kentfield, California, Sept. 4.

STEEL TREATERS AT BOSTON

Convention Makes a New Record in Papers and in Equipment

BOSTON, Sept. 23.—Surpassing all previous meetings, the sixth annual convention and exposition of the American Society for Steel Treating opened here yesterday. The attendance, particularly of members, is very large and the steel exposition exceeds in size and character anything attempted previously by this society.

The technical sessions are unusually well attended. Yesterday morning, at the first session, Charles J. Fox of the mayor's office welcomed the society on behalf of Mayor James M. Curley, V. O. Homerberg extended a welcome for the Boston chapter as its chairman, and A. O. Fulton, Wheelock & Lovejoy Steel Co., performed the same duty for the general committee, of which he is chairman. The president of the national society, Dr. George K. Burgess, responded. After this came technical papers on high-speed steel and magnetic analysis, with two foreign papers offered by title.

A lively session on salt baths was held yesterday afternoon at which three authorities in this line read papers. Today, at the morning session, papers on X-rays and high-power photomicrography were discussed, and there was a session on fuels for heat treating this afternoon.

Leading metallurgists of this country and of Europe are in attendance. An interesting personality is Dr. E. D. Campbell of the University of Michigan, who, though blind, is noted for his research in chemistry and metallurgy. Dr. Kotara Honda of Japan and Dr. Edward Schmidt of the Skoda Works in Czechoslovakia are among the foreign representatives, and F. C. A. H. Lantsberry represents the Jessop Steel Co., Sheffield, England. Dr. Kotara Honda has been made an honorary member of the society, the seventh person thus selected. F. F. Lucas, Western Electric Co., New York, has been named as the recipient of the Henry M. Howe medal for this year.

A complimentary luncheon to Dr. Honda is to be given on Wednesday by Dr. George B. Waterhouse, professor of metallurgy, Massachusetts Institute of Technology, Boston, at which leading metallurgists here will be present. The annual banquet will be held Thursday evening, at which General Pershing is expected to be the guest of honor.

With ten technical sessions spread over five days, the convention promises to make a new record for the society. A complete report will appear in *THE IRON AGE* Oct. 2. The next convention will be held in Cleveland.

The steel exposition, located at the Commonwealth Pier, some distance from the convention headquarters at the Copley-Plaza Hotel, is a center of interest. Exhibits are made by leading steel companies, heat treating equipment manufacturers and by allied industries, besides machinery. It is an imposing display. The space occupied exceeds by one-third that required at Pittsburgh last year. A feature is the 25,000 sq. ft. taken by machine tool and other machinery exhibitors.

Iron and Steel Markets

CONFUSED MARKETS

Wire and Sheet Prices Lower at Chicago, as Pittsburgh Basing Ends

New Business Less as Buyers Wait for the Situation to Clear

The steel industry is in the first throes of adjustment to the new price regime under which Pittsburgh basing is abolished and steel products are quoted f.o.b. mill or delivered at buyer's plant. Since Thursday, when the Steel Corporation's intentions to comply with the Federal Trade Commission's order became public, the market has been in great confusion. Meanwhile little business has been done.

Following the Steel Corporation's action, the Bethlehem Steel Corporation and some other independents whose plants are outside the Pittsburgh district have indicated that they will no longer use Pittsburgh basing. Until the situation is made clearer, various independent companies are naming delivered prices only, others are still using the Pittsburgh base.

The Steel Corporation's subsidiaries have been working on a new price structure, and already a schedule for wire products has been put out having five basing points. For wrought pipe there will be two prices, one for the Pittsburgh district, including Wheeling, and one for Lorain, Ohio. On sheets and tin plate, which the Steel Corporation produces at scattered mills, chiefly in eastern, Ohio, western Pennsylvania and West Virginia, the price scheme is not completed, but it is understood that the corporation will quote on black sheets at 3.65c. for Chicago delivery, or \$3 a net ton above Pittsburgh.

On plates, structural shapes and bars, as is well known, prices have long been independent of Pittsburgh basing, Chicago mills quoting but \$2 or \$3 a ton above Pittsburgh prices, though the freight from Pittsburgh is \$6.80. These products, therefore, are little affected.

The new wire prices are the same for Pittsburgh and Cleveland at \$2.50 for plain wire and \$2.75 per keg for nails, which is 5c. below the recent quotation at Pittsburgh. At Chicago the new delivered prices will be 15c. above the Cleveland and Pittsburgh basis, while the Waukegan, DeKalb and Joliet mill prices will be 10c. above Cleveland and Pittsburgh.

The most significant changes in prices so far as they have developed are that buyers at Chicago will pay but \$3 a net ton more than the Pittsburgh price, on sheets and wire products, whereas heretofore they have paid \$6.80 a net ton more.

What is already apparent, as the new situation is considered, is that producers of steel will find it more difficult to know what prices their competitors are naming, while consumers of steel will have equal difficulty in knowing at what prices their competitors are buying.

However, it is appreciated that pig iron producers for years have followed the practice of quoting prices f.o.b. furnace or delivered at buyer's plant, so that the abolition of Pittsburgh basing

means the putting of the finished steel trade in the position long occupied by pig iron.

A phase of the new regime which has been commented on is the ability of the Steel Corporation, with plants in different districts, to adapt itself to the Trade Commission's order, whereas some independent steel companies, with plants in a single locality, will find their radius of operations curtailed.

The week has brought little or no change in the rate of steel works operations. Quite generally steel companies report that bookings in the first three weeks of September have shown some falling off from the like period in August. Anticipation of the Steel Corporation's action has caused some hesitancy on the part of buyers, and now there is a more pronounced disposition to buy for immediate needs until the results of the new price system can be known.

Further early announcements of rail contracts for 1925 are looked for. Of the Reading quota 20,000 tons are likely to go to Bethlehem and 5000 tons to the Steel Corporation.

Pig iron is fairly active in some centers, particularly in Chicago, but buyers incline to delay purchases, and at Pittsburgh foundry and malleable grades are down 50c. per ton. The confusion in finished material markets is having its effect on pig iron.

On the Pacific Coast, Belgian and German makers of bars have made sales at 1.75c. c.i.f., which represents 2.05c., duty paid. This is well below the domestic price level, but corresponds closely with the 1.95c. basis on which Belgian bars were recently sold at Boston.

This week, as for five weeks past, THE IRON AGE pig iron composite price stands at \$19.46 per ton.

In contrast, the composite price for finished steel has shown three recessions in as many weeks, from 2.510c. per lb., on Sept. 4, to 2.496c., 2.481c. and 2.474c., successively. The new Pittsburgh wire price, which is \$1 a ton below that recently quoted, is responsible for the decline to 2.474c. this week.

Pittsburgh

Confusion Prevails While New Basing Methods Are Being Worked Out

PITTSBURGH, Sept. 23.—Much confusion has been created in the steel market here by the announcement late last week by the Steel Corporation of its intention to abide by the order of the Federal Trade Commission, with regard to the practice of basing prices at Pittsburgh. The several subsidiaries of the Steel Corporation during the past few days have been engaged in the formulation of methods of quoting and arriving at prices. So far, only the National Tube Co. and the American Steel & Wire Co. have made definite announcements and independent manufacturers, not being fully informed as to the new scheme of things, hesitate to take a step one way or the other.

For this week at least, the market will be partly on a Pittsburgh base and partly on an f.o.b. mill base, although prices of the Steel Corporation subsidiaries,

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	Sept. 23, 1924	Sept. 16, 1924	Aug. 19, 1924	Sept. 25, 1923
	1924	1924	1924	1923
No. 2X, Philadelphia...	\$21.76	\$21.76	\$21.75	\$25.76
No. 2, Valley Furnace...	19.50	20.00	19.00	24.50
No. 2, Southern, Cin'tit...	21.55	21.55	21.55	26.05
No. 2, Birmingham, Ala. f...	17.50	17.50	17.50	21.00
No. 2 foundry, Chicago...	20.50	20.50	20.50	26.00
Basic, del'd, eastern Pa...	20.00	20.00	20.00	25.00
Basic, Valley furnace...	19.00	19.00	19.00	24.50
Valley Bessemer del. P'gh.	21.76	21.76	21.76	23.26
Malleable, Chicago...	20.50	20.50	20.50	26.00
Malleable, Valley...	19.50	20.00	19.00	24.50
Gray forge, Pittsburgh...	20.76	21.26	20.26	25.76
L. S. charcoal, Chicago...	29.04	29.04	29.04	32.15
Ferromanganese, furnace...	95.00	95.00	95.00	110.00

Rails, Billets, Etc., Per Gross Ton:				
O.-h. rails, heavy, at mill...	\$43.00	\$43.00	\$43.00	\$43.00
Bess. billets, Pittsburgh...	36.00	36.00	38.00	40.00
O.-h. billets, Pittsburgh...	36.00	36.00	38.00	40.00
O.-h. sheet bars, P'gh...	37.00	37.00	38.00	40.00
Forging billets, base, P'gh.	42.00	42.00	43.00	47.50
O.-h. billets, Phila...	41.17	42.17	43.17	47.67
Wire rods, Pittsburgh...	46.00	46.00	46.00	51.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb...	2.00	3.00	2.00	2.40
Light rails at mill...	1.85	1.85	1.85	2.15

Finished Iron and Steel, Per Lb. to Large Buyers:				
	Cents	Cents	Cents	Cents
Iron bars, Philadelphia...	2.32	2.32	2.42	2.67
Iron bars, Chicago...	2.15	2.15	2.15	2.35
Steel bars, Pittsburgh...	2.00	2.00	2.10	2.40
Steel bars, Chicago...	2.00	2.00	2.10	2.50
Steel bars, New York...	2.34	2.34	2.44	2.74
Tank plates, Pittsburgh...	1.80	1.80	1.90	2.50
Tank plates, Chicago...	2.00	2.10	2.15	2.60
Tank plates, New York...	1.94	1.94	2.09	2.84
Beams, Pittsburgh...	2.00	2.00	2.00	2.50
Beams, Chicago...	2.00	2.10	2.15	2.60
Beams, New York...	2.24	2.24	2.34	2.84
Steel hoops, Pittsburgh...	2.60	2.60	2.60	3.15

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market report on other pages.

Sheets, Nails and Wire, Sept. 23, 1924, Sept. 16, 1924, Aug. 19, 1924, Sept. 25, 1923				
	1924	1924	1924	1923
Per Lb. to Large Buyers: Cents				
Sheets, black, No. 28, P'gh.	3.50	3.50	3.50	3.75
Sheets, galv., No. 28, P'gh.	4.60	4.60	4.60	5.00
Sheets, blue an't'd, 9 & 10	2.70	3.70	2.65	3.00
Wire nails, Pittsburgh...	2.75	2.80	2.80	3.00
Plain wire, Pittsburgh...	2.50	2.55	2.55	2.75
Barbed wire, galv., P'gh...	3.45	3.50	3.50	3.80
Tin plate, 100-lb. box, P'gh.	\$5.50	\$5.50	\$5.50	\$5.50

Old Material, Per Gross Ton:				
Carwheels, Chicago...	\$18.50	\$18.50	\$17.00	\$19.50
Carwheels, Philadelphia...	18.00	18.00	18.00	21.00
Heavy steel scrap, P'gh...	18.50	19.00	17.50	17.50
Heavy steel scrap, Phila...	17.00	17.50	17.00	16.50
Heavy steel scrap, Ch'go...	16.50	16.50	15.50	16.00
No. 1 cast, Pittsburgh...	18.00	18.00	18.00	21.00
No. 1 cast, Philadelphia...	18.00	18.00	19.00	21.00
No. 1 cast, Ch'go (net ton)	18.50	18.50	17.50	19.50
No. 1 RR. wrot. Phila...	19.00	19.00	19.50	19.00
No. 1 RR. wrot. Ch'go (net)	15.00	15.00	13.75	15.00

Coke, Connellsville, Per Net Ton at Oven:				
Furnace coke, prompt...	\$3.00	\$3.00	\$3.00	\$4.25
Foundry coke, prompt...	4.00	4.00	4.00	5.00

Metals, Per Lb. to Large Buyers:				
	Cents	Cents	Cents	Cents
Lake copper, New York...	13.25	13.50	13.75	13.87½
Electrolytic copper, refinery	12.75	13.00	13.50	13.25
Zinc, St. Louis...	6.12½	6.25	6.22½	6.42½
Zinc, New York...	6.47½	6.60	6.57½	6.77½
Lead, St. Louis...	7.85	7.95	8.00	6.75
Lead, New York...	8.10	8.10	8.20	7.10
Tin (Straits), New York...	46.87½	47.00	52.37½	42.25
Antimony (Asiatic), N. Y.	11.00	11.00	9.75	7.50

THE IRON AGE Composite Prices

Sept. 23, 1924, Finished Steel, 2.474c. Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.	{	Sept. 16, 1924, 2.491c. Aug. 26, 1924, 2.510c. Sept. 25, 1923, 2.775c. 10-year pre-war average, 1.689c.
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Sept. 23, 1924, Pig Iron, \$19.46 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.	{	Sept. 16, 1924, \$19.46 Aug. 26, 1924, 19.46 Sept. 25, 1923, 34.33 10-year pre-war average, 15.72
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1924 to Date				1923			
High	Low	High	Low	High	Low	High	Low
2.789c, Jan. 15	2.474c, Sept. 23	2.824c, April 24	2.446c, Jan. 2				
\$22.88, Feb. 26	\$19.29, July 8	\$20.86, March 30	\$20.77, Nov. 30				

when fully worked out, will be on a mill base, effective from Sept. 22.

Transaction of business has suffered considerably from the consideration of the change to an f.o.b. mill base or a delivered price method of making quotations. It may be that a desire to see how the change would work out has influenced buyers to withhold orders during the past few days, but whether that is the reason or not, most manufacturers in this and nearby districts have found the past week a quiet one. It is the more common report that September has not maintained the August rate of buying activity, and since the great bulk of orders has called for early delivery, the present outlook is that October steel works and mill operation will not be so high as they have been this month.

Price changes are shrouded in the confusion incident to the change in the mode of quoting, but it cannot be said that the market is any stronger than it has been and considerable irregularity is probable until the new order is an achieved fact.

The pig iron market remains very dull and concessions in foundry iron are frequently enough to warrant recognition in our quotations. The scrap market has given way almost as rapidly in the past week as it advanced in the previous week.

Although resumptons in the beehive ovens in the Connellsville district have been numerous enough to suggest a greater demand for coke, prices are, if anything, weaker than they have been.

We estimate ingot production in this and nearby

districts at 60 per cent of capacity, or at about the same rate as a week ago. The Jones & Laughlin Steel Corporation is putting on a furnace of its Eliza group this week which will give it a total of eight furnaces on pig iron and one on ferromanganese out of a total of 12 stacks. The Carnegie Steel Co. still has only 28 furnaces in production, despite reports that it had recently added four idle stacks to the active list. Dover Furnace, Dover, Ohio, is going in this week. This week will see 67 furnaces in production in this and nearby districts, a gain of three since the end of last month.

Pig Iron.—A West Virginia sheet maker has closed for 2000 tons of basic iron for shipment in October and did not find it necessary to pay as much as \$19 Valley furnace. It is believed that iron will come from a neighboring steel company. Valley furnaces still are quoting that grade at \$19, but it is a nominal quotation, since no sales of consequence are noted. Higher prices asked on this grade in the Valley and at Johnstown, Pa., are likewise unrepresentative of today's possibilities. Efforts to obtain more than \$20 Valley furnace for Bessemer grade have not been successful, and higher quotations in the Valley and elsewhere are merely asking prices. On foundry iron, most Valley producers are quoting \$20 Valley furnace, but sales from Valley furnaces lately have been more numerous at \$19.50 for the base grade than at \$20, and the market now is properly quotable at \$19.50 to \$20. The largest inquiry recently current, that from the American Brake Shoe & Foundry Co., was closed mostly at \$19.50 for No. 2 iron. Sales otherwise have been of small lots.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being \$1.76 per gross ton:

Basic	\$19.00
Bessemer	20.00
Gray forge	\$19.00 to 19.50
No. 2 foundry.....	19.50 to 20.00
No. 3 foundry.....	19.00 to 19.50
Malleable	19.50
Low phosphorus, copper free....	27.00 to 28.00

Ferroalloys.—Activity is lacking in all products under this heading in this district. Users of ferromanganese were able to cover their requirements for several months during the recent price war period and now are not interested in the market. The lowest quotation now current is \$95, Atlantic seaboard, this on British material, while the leading domestic producer has a quotation of \$100, base, seaboard. No sales are noted at either price. Interest also is low in 50 per cent ferrosilicon, but prices are holding reasonably firm. New business in spiegeleisen is light. Prices are given on page 793.

Semi-Finished Steel.—It is expected that prices of semi-finished steel will go on a mill base, now that the Steel Corporation has decided to abide by the Federal Trade Commission order on the method of quoting finished steel products. This probably will mean little change in prices, since Pittsburgh mills hitherto have quoted f.o.b. Youngstown, if the customer has so elected, and there have been as many cases of Youngstown and outside mills taking business f.o.b. Pittsburgh, if the customer was nearer Pittsburgh than the shipping mill. There are only three tin plate makers and two sheet manufacturers in this Pittsburgh district who buy sheet bars, the former all being supplied by the Steel Corporation and only four users of billets and slabs who do not make their own steel and two of them and a third one in part draw from the Steel Corporation. Alineation of sources of supplies will hardly be changed much by the substitution of a mill base for an f.o.b. Pittsburgh or Youngstown base. The common quotation of Pittsburgh district mills is \$37 for billets, slabs and sheet bars, \$42 for forging billets, \$46, base, for wire rods and 2c. for skelp. Actual selling prices are shrouded in the uncertainty incident to the change in basing point. One local independent, which, however, is laying down some steel, claims operations at a rate of above 75 per cent of ingot capacity, but Carnegie Steel Co. is under 65 per cent and the entire district, taking in Youngstown, and Wheeling, is

producing ingots at the rate of about 60 per cent of capacity. This is about last week's rate and reflects the recent slowing down in finished steel business, which with few companies is as good this month as it was in August. Prices are given on page 793.

Steel Rails.—Demand for light rails still is very limited despite the fact that the demand for coal is better than it was a short time ago and more mines are in operation. On the general run of business, 1.85c. to 1.90c., base, mill, is the prevailing range on billet rails, but the tonnages involved are small and on sizable lots, less has been done and probably would be again. Prices are given on page 792.

Cold-Finished Steel Bars and Shafting.—Makers with mills in the Pittsburgh district and having a common rate of freight to important consuming points still are quoting 2.70c., base, Pittsburgh, and claim that they have not been obliged to shade that price to meet competition from other mills, except for slight equalization of freights here and there. Fairly good business is being done, despite the uncertainty as to just where the quotable market will land when the matter of the change from a Pittsburgh basing on hot-rolled bars has been definitely settled. Ground shafting still is quoted in lots of a carload or more at \$3.20c., base, f.o.b. mill.

Bolts, Nuts and Rivets.—Separate basing points having been set up recently, with prices now on Chicago, Cleveland and Pittsburgh basings, the change in the general steel basing scheme has brought no change locally. Makers here are holding to the prices recently named for Pittsburgh, but do expect that they will have to equalize freights with competing centers to get business outside of the immediate Pittsburgh area. Prices and discounts of Pittsburgh makers are given on page 792.

Track Supplies.—Makers here are holding to their recent quotations, which for some time have been "good" only in the territory adjacent to Pittsburgh. Enlargement of coal mining operations has brought no material increase in the demand for small spikes and the railroads are not yet placing more than fill-in orders for large spikes and tie plates. Prices are given on page 792.

Sheets.—Any change adopted in prices or the mode of quoting sheets by the American Sheet & Tin Plate Co. will be effective from Sept. 22, but that company has not yet announced plans, and independent manufacturers as yet are on an f.o.b. Pittsburgh base. Getting the sheet industry on to an f.o.b. mill base is a very much more difficult problem than that of a number of other products because sheet mills are so widely scattered over the country and sheets have been more strictly on a Pittsburgh base than most other products. Sheet business lately has not been so good as it was in August, partly because buyers have been waiting to see how the change from the Pittsburgh base to a mill base was going to work out. Prices recently prevailing are given on page 792.

Tin Plate.—This product still is on an f.o.b. Pittsburgh base, as a change awaits an announcement by the leading interest, which was not ready Tuesday to disclose its mode of quoting, as its tin mills are widely scattered and many basing points would be necessary to embrace them all.

Hot-Rolled Flats.—No change is noted either as regards prices or mode of quoting on the product under this heading. The Carnegie Steel Co. has made no announcement, and independent companies still are largely on an f.o.b. Pittsburgh base. Keen competition for orders for wide strips still is noted and prices are irregular and easy. Narrower stock is holding fairly steady at recent quotations. Prices are given on page 792.

Cold-Rolled Strips.—Makers in this district are making a firm stand at 4c. base, Pittsburgh. It seems that recently lower prices were current, but lately the mills here have found it less frequently necessary to go below 4c. to get business.

Iron and Steel Bars.—It is still claimed that on the

bulk of current sales of steel bars the price is 2c. base at Pittsburgh district mills. Some contracts written earlier in the year at 2.40c. have been revised to 2.10c., Pittsburgh, basis. This price, however, cannot be done easily except in the freight zone favorable to Pittsburgh mills and in competition for business outside, particularly where sizable tonnages have been involved, 2c. base has been quoted and accepted by Pittsburgh mills. There is a fair demand for iron bars, but no change in prices of local makers. Prices are given on page 792.

Structural Material.—Local fabricating shops lately have been getting few awards of any considerable size and most of them note a decrease in the number of inquiries. So far as it can be determined, the market here on large structural shapes is 2c. at Pittsburgh mills. The Carnegie Steel Co. has not yet announced its prices or mode of quoting under the new arrangement. Prices are given on page 792.

Plates.—In this district, the market appears to be quotable at from 1.80c. to 2c. Youngstown mills still are trying to get 2c. at Pittsburgh, which would mean about 1.90c. at Youngstown. On local business, 1.90c. is the prevailing price of local mills, but on shipments into other territories they are going as low as 1.80c. The area in which Pittsburgh mills have a freight advantage is not productive of much business at present. Prices are given on page 792.

Wire Products.—Setting up of bases by the American Steel & Wire Co. for Pittsburgh, Cleveland, Chicago, Worcester, Mass., and Birmingham has not yet been followed by other independent manufacturers, most of whom through plant locations at a single point expect to find it difficult to compete at the prices named for the different centers by the leading interest. None of the local independents yet has arrived at a definite plan, and business lately received is being filed for quotation later. Pittsburgh prices are given on page 792.

Tubular Goods.—Fair demand for merchant pipe is observed, but oil country goods and line pipes are slow. The decision of the leading interest to establish bases at Pittsburgh and Lorain, Ohio, prices at both points being the same, was announced only this morning and independent manufacturers have not yet decided on a course. Lorain, Ohio, has an advantage of \$1 per ton over Pittsburgh in the matter of freights to the West and Southwest, and this would indicate a Pittsburgh price by independents on shipments to that part of the country in competition with Lorain of at least the amount of the freight difference. So far there has been no official abandonment of an f.o.b. Pittsburgh base on pipe or boiler tubes by independent manufacturers. Discounts which have recently prevailed are given on page 792.

Coke and Coal.—While sales of furnace coke for other than metallurgical use have been made as high as \$3.10 and \$3.15 per net ton at ovens, we note no sales to blast furnace interests at more than \$3, and a steel company which maintains both beehive and by-product ovens of its own recently covered the requirements of the furnace it is blowing in this week, about 15,000 tons, for shipment in October at \$3. Supplies of foundry coke also are ample for requirements, and prices are just about steady at \$4 to \$4.50 per net ton at ovens. While coal business is larger than it was a short time ago, prices remain low and easy because of competition for business. Slack grade is particularly easy, with steam slack quotable at \$1.10 to \$1.15 per net ton at mines and gas slack at \$1.25 to \$1.35. Mine run steam coal ranges from \$1.50 to \$2.10 and coking grade from \$1.60 to \$1.85 and gas coal from \$2 to \$2.25.

Old Material.—This market has weakened almost as rapidly as it recently advanced. In the week under review, about 20,000 tons of heavy melting steel was sold for delivery at Vandergrift, Pa., at \$20, but order specifies No. 1 railroad steel or its equivalent and such material usually commands 75c. to \$1 a ton above ordinary heavy melting grade. Recent offerings of heavy melting steel at Steubenville at \$19 have been refused; incidentally, the mill at that point which

recently paid up to \$20 and took about 20,000 tons, now is restricting the amount it will take in against its purchases. The Youngstown district no longer is taking much material and, locally, consumers are taking only their barest needs. Not more than \$19 can be obtained here and \$18.50 is all that some mills will pay. Compressed sheets no longer are quotable at above \$17, following recent sales at as high as \$17.75 and on lots which had to be moved \$16.50 was the best price obtainable. We note one sale of 500 tons at the higher figure. Light scrap holds fairly steady in the absence of large offerings. Foundry grades move slowly.

We quote for delivery to consumers' mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

Per Gross Ton	
Heavy melting steel	\$18.50 to \$19.00
No. 1 cast, cupola size	18.00 to 18.50
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	19.50 to 20.50
Compressed sheet steel	16.50 to 17.00
Bundled sheets, sides and ends ..	15.00 to 15.50
Railroad knuckles and couplers ..	21.00 to 22.00
Railroad coil and leaf spring ..	21.00 to 22.00
Low phosphorus blooms and billet ends	23.00 to 23.50
Low phosphorus plate and other material	22.00 to 22.50
Railroad malleable	16.50 to 17.00
Steel car axles	23.00 to 23.50
Cast iron wheels	18.50 to 19.00
Rolled steel wheels	21.00 to 22.00
Machine shop turnings	14.50 to 15.00
Sheet bar crops	22.00 to 22.50
Heavy steel axle turnings	15.50 to 16.00
Short shoveling turnings	16.00 to 16.50
Heavy breakable cast	15.00 to 15.50
Stove plate	15.00 to 15.50
Cast iron borings	16.00 to 16.50
No. 1 railroad wrought	18.50 to 19.00
No. 2 railroad wrought	18.50 to 19.00

Detroit Scrap Market

DETROIT, Sept. 23.—Melting of scrap in the Detroit district has shown no appreciable increase, and automobile manufacturers seem to have set schedules for the remainder of the year in line with August production. Prices are the same as quoted a week ago.

The following prices are quoted on a gross ton basis f.o.b. cars producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting steel	\$15.25 to \$15.75
Shoveling steel	15.00 to 15.50
Borings	11.75 to 12.25
Short turnings	11.50 to 12.00
Long turnings	10.50 to 11.00
No. 1 machinery cast	16.00 to 17.00
Automobile cast	18.00 to 18.50
Hydraulic compressed	13.50 to 14.00
Stove plate	14.00 to 14.50
No. 1 busheling	13.00 to 13.50
Sheet clippings	8.50 to 9.00
Flashings	11.75 to 12.25

Tennessee Company Improvements

BIRMINGHAM, ALA., Sept. 23.—The Tennessee Coal, Iron & Railroad Co. announces improvements to be made at the Bessemer, Ala., rolling mills which will include motors with which to speed up production and the addition of smaller sizes in steel, including cotton ties, a new product for the corporation in this district.

Production of beehive coke is reported by the United States Geological Survey for the week ended Sept. 13 at 111,000 net tons, compared with 112,000 tons during the previous week and with 317,000 tons during the corresponding week of last year. In 1924 to date the production has aggregated 7,204,000 tons, compared with 13,795,000 tons for the corresponding period last year.

A new course on "Inspection of Engineering Metals" has been provided for by the Polytechnic Institute of Brooklyn, 99 Livingston Street, Brooklyn, which is scheduled to start Feb. 2, 1925. It will consist of sixteen 2-hr. sessions, which are to be given by E. P. Polushkin. Further details of these evening lectures can be obtained by addressing the institute.

Chicago

New Prices on Sheets Show Reduction of \$3.80 Per Ton

CHICAGO, Sept. 23.—The interest of the trade has been centered on changes in wire and sheet prices made in conformity with the Steel Corporation's abandonment of the Pittsburgh basing point practice. Details regarding this important development are published elsewhere in this issue. Meanwhile business continues to show steady improvement, and mill output is expanding. Over 90,000 tons of steel for railroad cars has been placed during the week, and fresh inquiries for rolling stock involve a like tonnage.

Prices on plates, shapes and bars lack consistency, and for that reason buyers still hesitate to commit themselves for any distance ahead. There is no question, however, that the position of the mills is improving, and it is believed to be only a matter of time when the market will stabilize on a firm basis.

A leading interest which added a blast furnace at Gary last week has lighted another at South Chicago this week, increasing the total number of active steel works stacks to 17 out of a total of 34 in the district. Its steel output now exceeds 50 per cent of capacity, while another important producer is running at 75 per cent.

Pig Iron.—Bookings this month do not involve as large an aggregate tonnage as those of August, when considerable contracting for fourth quarter was done, but spot buying is good and shipments are liberal, indicating an increase in melt. Although the market cannot be described as active, it is believed that sellers of local iron who have not yet advanced prices to \$21 base furnace will do so shortly. The blowing in of a second Iroquois furnace last week is to be followed by the lighting of the Zenith stack at Duluth about Oct. 1. Current inquiries range from carload lots to several hundred tons, among them being 900 tons equally divided between low phosphorus, Bessemer and high silicon malleable, 400 tons of foundry, 400 tons of low phosphorus and 350 tons of foundry. The lowest going price on low phosphorus appears to be \$31.79 delivered Chicago. We note the sale of 100 tons of silvery and an inquiry for one or two cars of 15 per cent silvery. Small sales of Southern continue to be made at \$17.50, base Birmingham.

Quotations on Northern foundry, high phosphorus, malleable and basic iron are f.o.b. local furnaces and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards.

Northern No. 2 Foundry, sil. 1.75 to 2.25	\$20.50 to \$21.00
Northern No. 1 foundry, sil. 2.25 to 2.75	21.00 to 21.50
Malleable, not over 2.25 sil.	20.50 to 21.00
Basic	20.50
High phosphorus	20.50
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (barge and rail)	22.18
Southern No. 2, sil. 1.75 to 2.25	23.51 to 24.01
Low phos., sil. 1 to 2 per cent, copper free	31.79
Silvery, sil. 8 per cent	34.29 to 35.29
Electric ferrosilicon, 14 to 16 per cent	43.42

Ferrolloys.—A sale of 100 tons of ferromanganese has been made at \$95, seaboard, but an early advance is looked for.

We quote 80 per cent ferromanganese, \$102.56, delivered; 50 per cent ferrosilicon, \$75, delivered; spiegeleisen, 18 to 22 per cent, \$40.56, delivered.

Plates.—Over 90,000 tons of plates, shapes and bars has been bought in this market by car builders during the week, and fresh inquiries for freight cars total 7500, probably involving fully 80,000 tons additional. Fabricators of oil storage tanks are also active in the market, a local company having placed 5000 tons of plates with a Chicago mill. Prices are erratic, ranging from 2c. on attractive tonnages up to 2.15c., Chicago.

The mill quotation is 2c. to 2.15c., Chicago. Jobbers quote 3.10c. for plates out of stock.

Structural Material.—This market shows signs of improvement, as evidenced by the recent placing of a number of large projects, which had been long pending, and by the rapidity with which new inquiries are being followed by awards. Competition between fabricators is still keen, but their attitude is stiffening as they accumulate backlogs. In fact, one of the largest local fabricators is now committed to capacity for some time to come. Lettings for the week total more than 7100 tons, while fresh inquiries aggregate 2800 tons. Plain material prices lack consistency, but inasmuch as 2c., Chicago, has been done on large tonnages, the market range appears to be from 2c. to 2.15c., Chicago.

The mill quotation on plain material is 2c. to 2.15c., Chicago. Jobbers quote 3.10c. for plain material out of warehouse.

Bars.—Demand for soft steel bars continues to show slow improvement, with the price situation unchanged. Manufacturers of bolts, rivets and nuts have been particularly active as buyers. Purchases are still for early shipment and this is not surprising in view of the satisfactory deliveries available from the mills. Business in bar iron has piled up sufficiently to enable a local mill which had been idle for several weeks to run this week. Demand for rail steel bars is gaining gradually and one Chicago Heights mill expects to go on double turn Oct. 1. Both bar iron and rail steel are unchanged as to price.

Mill prices are: Mild steel bars, 2c. to 2.10c.; common bar iron, 2.15c. to 2.20c., Chicago; rail steel, 2c., Chicago mill.

Jobbers quote 3c. for steel bars out of warehouse. The warehouse quotations on cold-rolled steel bars and shafting are 3.80c. for rounds and 4.30c. for flats, squares and hexagons; 4.15c. for hoops and 3.65c. for bands.

Jobbers quote hard and medium deformed steel bars at 2.20c.

Sheets.—New Chicago prices on sheets, just announced, will be \$3 a ton higher than quotations at Pittsburgh. This amounts to a reduction of \$3.80 at Chicago. Blue annealed is quoted at 2.85c. base, delivered Chicago, galvanized at 4.75c. and black at 3.65c. These prices are delivered at regular railroad siding in the city, and for team track delivery an extra charge of 1½c. per 100 lb. will apply.

Wire Products.—Details regarding change in mill price are published elsewhere in this issue. Duluth base prices will be \$4 a ton or 20c. per 100 lb. above the Pittsburgh and Cleveland base prices. Local warehouse prices have been reduced 40c. per 100 lb. and per keg respectively and are given below.

We quote warehouse prices f.o.b. Chicago: No. 8 black annealed, \$3.05 per 100 lb.; extra for black annealed wire, 15c. net 100 lb.; common wire nails, \$3.15 per 100 lb.; cement coated nails, \$2.40 per keg.

Rails and Track Supplies.—Aside from further releases of both rails and track supplies, the market has been barren of new features. New orders for track fastenings are confined to scattered small tonnages. The Chesapeake & Ohio, which placed 10,000 tons of rails with Chicago mills some weeks ago, has ordered 2300 tons for the Hocking Valley from the Bethlehem Steel Corporation.

Standard Bessemer and open-hearth rails, \$43; light rails, rolled from billets, 1.80c. to 1.90c., f.o.b. makers' mill.

Standard railroad spikes, 2.80c. to 3c. mill; track bolts with square nuts, 3.80c. to 4c. mill; steel tie plates, 2.45c., f.o.b. mill; angle bars, 2.75c. f.o.b. mill.

Jobbers quote standard spikes out of warehouse at 3.45c. base, and track bolts, 4.45c. base.

Bolts and Nuts.—Although buying at the new prices is still light, specifications against third quarter contracts which were closed at lower quotations are heavy. Releases from the farm implement industry are particularly liberal. Automobile makers are still slow in placing their requirements.

Jobbers quote structural rivets, 3.65c.; boiler rivets, 3.85c.; machine bolts up to ¾ x 4 in., 60 per cent off; larger sizes, 60 off; carriage bolts up to ¾ x 6 in., 55 off; larger sizes, 55 off; hot pressed nuts, squares and hexagons, tapped, \$4 off; blank nuts, \$4 off; coach or lag screws, gimlet points, square head, 65 per cent off.

Cast Iron Pipe.—With better demand from the larger as well as the small municipalities, prices still show variation and when attractive tonnages are involved, ruling quotations are sometimes shaded. James B. Clow & Sons will furnish 400 tons for Adamson, Ill.,

and several hundred tons for Ferndale, Mich. The United States Cast Iron Pipe & Foundry Co. is low bidder on 2500 tons of 8-in. for Detroit. The National Cast Iron Pipe Co. has been awarded 700 tons for Berkeley, Mich. Chicago takes bids Sept. 25. on 600 tons of 8-in. and 100 tons of 16-in. Sandusky, Ohio, receives tenders Oct. 3 on 130 tons of 6- and 12-in. Class C.

We quote per net ton, f.o.b. Chicago, as follows:
Water pipe, 4-in., \$56.20 to \$57.20; 6-in. and over, \$52.20 to \$53.20; Class A and gas pipe, \$5 extra.

Billets.—Sales have been made of two large tonnages of 1½-in. square billets, one lot of 5000 tons and the other of 2500 tons, at \$35 per gross ton, f.o.b. Chicago. Both lots were part Bessemer and part open hearth steel.

Reinforcing Bars.—While the price situation has shown no change for the better, the placement of a number of pending tonnages is a source of encouragement. For the first time in weeks the award of a round lot of highway tonnage is reported. Among pending local projects the Franklin Street garage, involving 500 tons, is expected to be placed momentarily. The reinforcing steel required in the Morrison Hotel addition, Chicago, is expected to reach close to 1000 tons. Warehouse prices are still soft, with 2.20c., Chicago, commonly quoted.

Lettings include:

Concourse Garage, Seventeenth and Pine Streets, St. Louis, 700 tons to Laclede Steel Co.

City of Chicago, Western Avenue Pumping Station, 300 tons to Joseph T. Ryerson & Son.

Wieboldt Store Building, Chicago, 200 tons to Olney J. Dean Co.

Oliver Street Bridge, Indianapolis, 260 tons to Kalman Steel Co.

Missouri State highway work, 300 tons to Olney J. Dean Co.

Calumet City, Ind., reservoir, 100 tons to Concrete Steel Co.

Illinois State highway work, 200 tons to Olney J. Dean Co.

Pending business includes:

Franklin Street Garage, Chicago, 500 tons, general contract awarded to Paschen Brothers.

Sanitary District of Chicago, north side intercepting sewers, Sections 5 and 6, 200 tons, general contracts awarded.

Old Material.—Following the absorption of distress material, the market is steadier and tendencies pointing

to a general price decline have disappeared. The situation has also been strengthened through the purchase of 10,000 tons of heavy melting steel at \$17 delivered by a leading independent mill. Other consumer buying has been scattered and while concessions were gained on certain low phosphorous grades and a few other items, these were balanced by advances paid on other material, notably frogs, switches and guards. Railroad lists include the Burlington, 4500 tons; the Elgin, Joliet & Eastern, 750 tons; the Baltimore & Ohio Chicago Terminal, 500 tons; the Michigan Central, a blank list, and the Chesapeake & Ohio, 5000 tons of heavy milling and 8000 tons of destroyed steel car scrap.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Iron rails	\$18.50 to \$19.00
Cast iron car wheels.....	18.50 to 19.00
Relaying rails, 56 and 60 lb.....	26.00 to 27.00
Relaying rails, 65 lb. and heavier	27.00 to 32.00
Forged steel car wheels	19.50 to 20.00
Railroad tires, charging box size	19.50 to 20.00
Railroad leaf springs, cut apart..	19.50 to 20.00
Rails for rolling.....	17.50 to 18.00
Steel rails, less than 3 ft.....	18.00 to 18.50
Heavy melting steel.....	16.50 to 17.00
Frogs, switches and guards cut apart	17.00 to 17.50
Shoveling steel	16.25 to 16.75
Drop forge flashings.....	12.00 to 12.50
Hydraulic compressed sheets.....	13.50 to 14.00
Axle turnings	14.00 to 14.50
Steel angle bars.....	18.00 to 18.50
Steel knuckles and couplers.....	19.50 to 20.00
Coil springs	20.50 to 21.00
Low phos. punchings.....	17.50 to 18.00
Machine shop turnings.....	10.00 to 10.50
Cast borings	12.25 to 12.75
Short shoveling turnings	12.25 to 12.75
Railroad malleable	18.50 to 19.00
Agricultural malleable	17.00 to 17.50

Per Net Ton	
Iron angle and splice bars.....	18.00 to 18.50
Iron arch bars and transoms.....	19.00 to 19.50
Iron car axles	25.25 to 25.50
Steel car axles	19.00 to 19.50
No. 1 busheling.....	12.50 to 13.00
No. 2 busheling.....	8.50 to 9.00
Pipes and flues.....	11.50 to 12.00
No. 1 railroad wrought.....	15.00 to 15.50
No. 2 railroad wrought.....	14.75 to 15.25
No. 1 machinery cast.....	18.50 to 19.00
No. 1 railroad cast.....	17.00 to 17.50
No. 1 agricultural cast.....	17.00 to 17.50
Locomotive tires, smooth.....	17.00 to 17.50
Stove plate	15.00 to 15.50
Grate bars	15.40 to 15.50
Brake shoes	15.50 to 16.00

NEW SHEET SELLING POLICY

Announcement Indicates Pittsburgh Prices Will Not Be Changed

CHICAGO, Sept. 23.—The new prices announced by the American Sheet & Tin Plate Co. indicate that sheet quotations at Pittsburgh will remain unchanged at 2.70c. base for blue annealed, 4.60c. base for galvanized and 3.50c. base for black. Delivered prices at Chicago will be \$3 a ton higher, or 2.85c. base for blue annealed, 4.75c. base for galvanized and 3.65c. base for black. These quotations, however, will apply only where delivery is made at regular railroad sidings and a charge of 1½c. extra will be made for delivery at team tracks. These prices constitute a reduction of 19c. per 100 lb., but it is understood that they will apply only on gages actually rolled at the Gary works. Whether buyers will find it necessary to pay the Pittsburgh base price plus the freight when Chicago district capacity is committed is still an open question, although it is a logical inference. It is to be noted, however, that hereafter all prices will be quoted on a delivered basis and this plan will permit shipment from any producing point if the mill chooses to absorb the freight. This is regarded as an unlikely development. Although prices are not quoted f.o.b. mill, it is understood that Chicago delivered prices are arrived at by adding 5c.

per 100 lb. for freight from Gary. Similar delivered prices at such points as St. Louis and Omaha will be arrived at by adding the respective freights to the prices at Gary, which, being 5c. lower than at Chicago, are only 10c. per 100 lb. higher than the quotations at Pittsburgh. The actual base price for Western territory, therefore, is f.o.b. mill rather than f.o.b. Chicago. Inquiries received by Western mills have been heavy for the past two weeks and it is the opinion of some that it will not take long to fill up Western capacity. What will happen then will prove interesting. Western sheet consumption, it is asserted, greatly exceeds Western sheet capacity. Even though Western mills sell out at the new localized prices, it may develop that large quantities of material will still have to be bought at the Pittsburgh base prices plus the freight. If this proves to be the case, it will be particularly difficult to adjust warehouse prices to the new situation. A reduction now may have to be followed by sharp advances.

Bolt, nut and rivet prices were not affected by the Federal Trade Commission's order. They have been quoted on a Chicago base for more than two years.

Electroplating performed in 440 establishments in 1923 is reported by the Census Bureau to have amounted to \$12,243,133, compared with \$8,040,954 from 392 establishments in 1921. The wage earners increased from 2460 to 3863 and their wages from \$3,562,980 to \$5,168,500. The horsepower used in 1923 was 9563, while the coal consumed amounted to 5505 net tons.

New York

Marked Conservatism Characterizes Buyers of Pig Iron and Finished Materials

NEW YORK, Sept. 23.—Orders for various steel products have been coming to local sales offices at about the rate of previous weeks of September. With some offices the month shows a slight gain over August in the volume of orders, but on the whole has proved disappointing. A fair amount of structural steel work for this season is being let, and new work is also coming out in fair volume. Inquiries include one job of 5000 tons, an office building to be built at Madison Avenue and Forty-ninth Street. After the promising start made by a few of the railroads in car buying, the demand for cars has petered out and there is very little new to report in the equipment field. With the Presidential election only six weeks off, and much confusion due to abolishing Pittsburgh plus, there is a good deal of conservatism among buyers and the opinion now prevails that this conservatism will continue until the result of the election is assured. Prices of steel products continue weak, but unchanged, as compared with a week ago. Plates at 1.60c. to 1.70c., structural shapes at 1.90c. to 2c. and bars at 2c., all Pittsburgh basis, represent the range of prices of the major products. Some weakness also appears in sheets, but orders are small and therefore not tempting enough to some of the mills to bring out many concessions. In hot-rolled strip steel variations in prices have developed, a few mills making concessions on extra wide sizes, 2.40c., Pittsburgh, having in some instances been shaded. On the narrow strips 2.50c. is the usual quotation.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.34c. to 2.44c.; plates, 1.94c. to 2.04c.; structural shapes, 2.24c. to 2.34c.; bar iron, 2.34c.

Pig Iron.—Sales of pig iron last week in this territory amounted to about 15,000 tons, but inquiry has dwindled this week to almost nothing, and the outlook for the immediate future is not encouraging. Prices are unchanged, with no prospect of advance while the present unsettled conditions continue in the finished material market, owing to the abandoning of the Pittsburgh plus method of selling. The American Locomotive Co. has bought 2500 tons of No. 1X, No. 2X and No. 2 plain, and is understood to have received a slight concession from the \$19.50 base on No. 2 plain, but paid \$20.50 on No. 1X and \$20 on No. 2X. The inquiries of the Pennsylvania Railroad for 5000 tons and of the General Electric for 2000 tons are still pending. The New York Central Railroad is inquiring for from 600 to 1000 tons. Reports concerning the foundry business in the Connecticut valley indicate a very greatly reduced rate of production.

We quote delivered in the New York district as follows, having added to furnace price \$2.27 freight from eastern Pennsylvania, \$4.91 from Buffalo and \$5.44 from Virginia:

East. Pa. No. 2, sil. 1.75 to 2.25..	\$22.27 to \$22.77
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	23.27 to 23.77
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	22.77 to 23.27
Buffalo, sil. 1.75 to 2.25	24.41
No. 2 Virginia, sil. 1.75 to 2.25..	29.94 to 30.44

Ferroalloys.—The needs of most consumers having been satisfied several weeks ago, current business is in small volume, consisting only of occasional carload lots. Ferromanganese is offered at \$95, seaboard, by agents for British producers, and while the leading domestic producer is nominally quoting \$100, furnace, no sales are reported at this price. Spiegeleisen is quoted at \$32 to \$33, furnace, with small sales.

Cast Iron Pipe.—Demand for water pipe is well maintained, purchases by private companies beginning to be added to by calls for bids from municipalities. The Department of Water Supply, Gas and Electricity, City of New York, will open bids Sept. 30 on about 782 net tons of 6-in., 8-in. and 12-in. water pipe and fittings involved in a contract for installation in the Boroughs of Queens and the Bronx. The Department of Streets and Public Improvements, Newark, N. J., is expected

to call for bids on water pipe shortly. We quote per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, \$56.60 to \$57.60; 4-in. and 5-in., \$61.60 to \$62.60; 3-in., \$71.60 to \$72.60, with \$5 additional for Class A and gas pipe. Jobbers of soil pipe, evidently with only small stocks on hand, have been placing small orders for immediate shipment. Quotation of discounts two to three points higher than the average continues in some quarters. We quote nominal discounts of both northern and southern makers, f.o.b. New York, as follows: 6-in., 45 to 46¼ per cent off list; heavy, 55 to 56¼ per cent off list.

Warehouse Business.—Most warehouses estimate September to have been a better month than August, but as the latter was particularly quiet, present conditions are far from active. Prices continue firm on most products and sales of structural material are holding up well, although small in tonnage. Sheets are quiet, particularly black. While galvanized are firm at 5.60c. to 5.75c. per lb. base, the higher price seems to be only for very small purchases. Cold-rolled shafting has been reduced 10c. per 100 lb. by warehouses in the New York district. Sales of pipe continue fairly numerous, but in small lots. Although August and September sales of wrought iron and steel pipe will compare favorably with the same period of last year, sellers recall that these months of 1923 were unusually quiet. We quote prices on page 806.

Coke.—The market is quiet and prices holding quite firmly, fewer distress tonnages being reported available. Standard foundry for prompt shipment is quoted at \$4.25 to \$4.75 per ton and standard furnace at \$3.25 to \$3.50 per ton. By-product is unchanged at \$10.41, Newark and Jersey City, N. J.

Old Material.—Prices continue fairly firm, but on practically all grades the market is inactive. The market on No. 1 heavy melting steel is still quotable at from \$16.50 to \$17.50 per ton, delivered to eastern Pennsylvania consumers. Brokers are making vigorous efforts to close new contracts, but consumers are not inclined to offer more than the current prices. One contract recently closed showed no advance in price. Borings and turnings are going forward to a Parkersburg consumer at \$13.50 to \$14 per ton, delivered. Heavy breakable cast is strong at \$16 to \$16.50 per ton, delivered to Harrisburg, Pa. A New Jersey consumer of stove plate taking a \$2.02 freight rate is offering only \$14.50 per ton delivered. Brokers claim that it is difficult to obtain tonnages at this price. There is some buying of heavy melting steel by brokers in anticipation of contracts not yet closed, but on the whole the tendency seems to be to await developments of the immediate future.

Buying prices per gross ton New York follow:

Heavy melting steel, yard.....	\$13.00 to \$13.50
Heavy melting steel, railroad or equivalent	14.00 to 14.50
Rails for rolling	14.50 to 15.00
Relaying rails, nominal.....	24.00 to 25.00
Steel car axles.....	18.50 to 19.50
Iron car axles.....	26.00 to 28.00
No. 1 railroad wrought.....	14.50 to 15.00
Forge fire	10.25 to 10.75
No. 1 yard wrought, long.....	13.50 to 14.00
Cast borings (clean).....	9.50 to 10.00
Machine shop turnings.....	9.50 to 10.00
Mixed borings and turnings.....	9.00 to 9.50
Iron and steel pipe (1 in. diam., not under 2 ft. long).....	12.25 to 12.75
Stove plate	11.50 to 12.50
Locomotive grate bars.....	11.50 to 12.50
Malleable cast (railroad).....	14.00 to 14.50
Cast iron car wheels.....	14.50 to 15.00
No. 1 heavy breakable cast.....	12.50 to 13.00

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast.....	\$16.00 to \$16.50
No. 1 heavy cast (columns, building materials, etc.), cupola size	14.00 to 14.50
No. 2 cast (radiators, cast boilers, etc.)	13.00 to 13.50

Production of bituminous coal in the week ended Sept. 13 is reported by the United States Geological Survey at 9,531,000 net tons, making a total of 312,102,000 tons to date. The production in the previous week was 7,958,000 tons, while in the corresponding week of 1923 production was 11,378,000 tons and the aggregate to that date last year was 388,212,000 tons, or about 25 per cent more than this year's production.

Buffalo

Large Purchases of Heavy Melting Steel by Consumers—Furnace Blown In

BUFFALO, Sept. 23.—The Rogers-Brown Iron Co. placed another stack in blast, swelling the total furnaces active to eight. The week was not so active as some of its predecessors, but the total inquiry ranged around 10,000 tons. The principal individual inquiry was for 2000 tons of foundry iron. Some of the furnaces are maintaining the \$19.50 price, but lower than this has been done on some business. On the \$19.50 base the differentials for the two higher silicons are \$20 and \$21.50. Outside of the 2000-ton inquiry for foundry the remainder were for scattering tonnages. Most of the business now being placed is for fourth quarter, with the larger part already entered on furnace books.

We quote prices f.o.b. gross ton, Buffalo, as follows:

No. 2 plain, sil. 1.75 to 2.25.....	\$19.00 to \$19.50
No. 1 foundry, sil. 2.75 to 3.25....	20.00 to 21.00
No. 2 foundry, sil. 2.25 to 2.75....	19.50 to 20.00
Malleable, sil. up to 2.25.....	19.00 to 19.50
Lake Superior charcoal.....	29.25

Finished Iron and Steel.—Automobile manufacturers have been active in the sheet market and some sizable tonnages for prompt delivery have been placed. The price named in most of these orders has been 3.50c., but 3.40c. has been done on larger lots. Bar business is quiet, except that reinforcing bar tonnage is accumulating slowly. Not much new business has been placed or is in prospect. Production is high on account of heavy August business. Local makers have taken one 100-ton contract for a Rochester building and 300 tons of road-mesh is pending. Wire business is not heavy at the present time, but better buying is expected toward the latter end of the quarter. Fabricators report conditions quieter. Warehouse business shows a little improvement, with structural and bridge material sought in particular. No price changes are in sight and there is a better feeling. Warehouse men say that each month shows a slight improvement over the preceding one.

Steel bars, 3.30c.; iron bars, 3.35c.; reinforcing bars, 3.30c.; structural shapes, 3.40c.; plates, 3.40c.; No. 10 blue sheets, 4.05c.; No. 28 black sheets, 4.75c.; No. 28 galvanized sheets, 5.25c.; bands, 4.05c.; hoops, 4.40c.; cold finished rounds, 4.20c.; cold-finished shapes, 4.70c.

Old Material.—The feature of the market was the purchase by two of the larger mills of more than 60,000 tons of scrap, mostly heavy melting steel. While the mills had to pay somewhat more for it than would have been the case had they bought two weeks ago, some of the dealers who were holding material for an increase in price were forced to sell scrap they had paid \$18.50 for, for \$17.25 to \$18, which was the figure the mills paid. Many of these dealers had been expecting to sell at \$19 or better. Open-hearth furnaces have been using a mixture lately in which pig iron was taking the place of heavy melting steel, so much out of the way did they deem the scrap price. Some good sales of hydraulic compressed have been made at \$16.50, while loose bundled sheets have been sold in sizable tonnage at \$12.50. Stove plate, borings and turnings have also been more active. More business was done in old material last week, it is probable, than for some weeks past.

We quote f.o.b. gross ton, Buffalo, as follows:

Heavy melting steel.....	\$17.00 to \$18.00
Low phosphorus, 0.04 and under	19.50 to 20.50
No. 1 railroad wrought.....	15.50 to 16.00
Car wheels.....	16.00 to 16.50
Machine shop turnings.....	11.50 to 12.50
Cast iron borings.....	12.00 to 12.50
No. 1 busheling.....	15.00 to 16.00
Stove plate.....	16.00 to 16.50
Grate bars.....	15.00 to 15.50
Bundled sheets.....	12.50 to 13.00
Hydraulic compressed.....	15.50 to 16.50
Railroad malleable.....	17.50 to 18.50
No. 1 machinery cast.....	17.50 to 18.00

Steel furniture shipments in August, reported by 22 manufacturers to the Department of Commerce, aggregated \$1,184,611, compared with \$1,115,792 in July and with \$1,345,147 in August, 1923. Except for the current July the August figures are the lowest since September, 1922.

Birmingham

Moderate Sales of Pig Iron—Vanderbilt Furnace Is Blown In

BIRMINGHAM, ALA., Sept. 23.—Southern furnace companies are still receiving inquiries for pig iron, and sales are steady, mostly in small lots, for immediate delivery. Now and then an order for 1000 tons is heard of. The aggregate of sales is considerably more than the production and the indications now are that the fourth quarter will be entered with the orders in hand covering a considerable proportion of the probable make. No sales are yet reported for first quarter of 1925. The blowing in of the Vanderbilt furnace of the Woodward Iron Co. this week makes four stacks now going with that company. The Sloss-Sheffield Steel & Iron Co. has four furnaces going also. The local consumption shows steadiness. The smaller furnace interests which have maintained the higher prices for the product have been selling in small lots, spot business, and are able to start shipments as promptly as consumers have wished. Quotations range between \$18 and \$18.50 per ton for No. 2 foundry. These prices are being looked at by consumers in the far East. Birmingham iron can be placed in Boston at around \$24.91 to \$25 for No. 2 foundry. The local consumption is showing improvement through activity in the cast iron pipe trade. Negotiations are under way for further large tonnages, one order for 25,000 tons to be divided again.

We quote per gross ton, f.o.b. Birmingham district furnace as follows:

No. 2 foundry, 1.75 to 2.25 sil....	\$17.50 to \$18.00
No. 1 foundry, 2.25 to 2.75 sil....	18.00 to 18.50
Basic.....	18.50 to 19.00
Charcoal warm blast.....	30.00 to 31.00

Cast Iron Pipe.—The soil or sanitary pipe and fittings manufacturers have felt a little impetus in their trade and several of the larger shops are distributing some of the business coming in. The large sized pipe makers are operating to capacity and shipping at the same rate. Quotations for gas and water pipe are stationary, ranging from \$45 to \$50, according to size and lots. Lettings are coming in almost daily.

Finished Material.—Steel fabricators report a little improvement in their business. The Southern Steel Co.'s fabricating plant has taken the contract for the steel for the Fifth Avenue Presbyterian Church, 150 tons; Southern Railway System office building, Redmont Hotel and other structures. The operations at steel mills of this district show no change. Shipments of wire and nails are somewhat improved and stock in warehouse is being moved. Steel bars are quoted 2.15c. to 2.25c., Birmingham.

Coke.—Despite the fact that a few cars of Birmingham coke were shipped the past week into the St. Louis territory and that inquiries are still in hand for the product, the coke market is considered rather quiet and quotations weak. The foundry coke, both beehive and by-product, is being quoted at from \$5 to \$5.25 per ton, while furnace coke is to be had as low as \$4.50. Contracts are not strong in prospect. The weakening of feeling will be temporary, it is believed.

Scrap.—The scrap iron and steel market is steady and no changes in quotations were noted the past week. Dealers report completion of delivery on old contracts and making of short time orders for No. 1 cast, stove plate and some other grades.

We quote per gross ton f.o.b. Birmingham district yards as follows:

Cast iron borings, chemical.....	\$15.00 to \$16.00
Heavy melting steel.....	12.50 to 13.00
Railroad wrought.....	12.00 to 13.00
Steel axles.....	17.00 to 18.00
Iron axles.....	19.00 to 19.50
Steel rails.....	12.50 to 13.00
No. 1 cast.....	14.00 to 15.00
Tram car wheels.....	15.00 to 16.00
Car wheels.....	14.00 to 15.00
Stove plate.....	12.50 to 14.00
Machine shop turnings.....	6.00 to 7.00
Cast iron borings.....	7.00 to 8.00
Rails for rolling.....	15.00 to 16.00

Boston

Pig Iron Buying Drops to a Minimum and Prices Are No Firmer

BOSTON, Sept. 23.—Buying of pig iron the past week dropped to a minimum, the largest sales reported being 500 tons of western Pennsylvania No. 2X at \$22 furnace. Business otherwise was confined mostly to car lots. In addition, there are no open inquiries in the market at the moment. At the present ratio of melt in New England a large percentage of the foundries operating have sufficient iron on hand or on order to carry them through the remainder of 1924. Prices are no firmer, and in some instances easier. Buffalo iron was offered the past week in Connecticut at \$19 furnace base, and eastern Pennsylvania at \$20, but elsewhere in New England \$19.50 furnace appears to be the lowest quotation on Buffalo and \$20.50 furnace on eastern Pennsylvania. At least one Buffalo furnace is asking 50c. a ton more than heretofore on silicon 2.75 to 3.25 and higher and has done a little business on the new basis. In the past week, 250 tons of Scotch iron arrived at this port, the first lot of such iron received in many weeks. A consignment of India iron also arrived.

We quote delivered prices on the basis of the latest reported sales as follows, having added \$3.65 freight from eastern Pennsylvania, \$4.91 from Buffalo, \$5.92 from Virginia and \$9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25.....	\$23.65 to \$25.15
East. Penn., sil. 2.25 to 2.75.....	24.15 to 25.15
Buffalo, sil. 1.75 to 2.25.....	23.91 to 24.41
Buffalo, sil. 2.25 to 2.75.....	24.41 to 24.91
Virginia, sil. 1.75 to 2.25.....	29.42 to 29.92
Virginia, sil. 2.25 to 2.75.....	29.92 to 30.42
Alabama, sil. 1.75 to 2.25.....	27.10 to 27.60
Alabama, sil. 2.25 to 2.75.....	27.60 to 28.10

Cast Iron Pipe.—Leominster, Mass., has purchased 6000 ft. of 12-in. pipe from the Warren Foundry & Pipe Co., the largest municipal business placed during the past fortnight. Some towns and cities, however, are sounding out the market for pipe required next spring, but no formal inquiries have come into the market. The Warren Foundry & Pipe Co. also has contracted with one of the largest Massachusetts gas companies for its late fall pipe requirements, a large tonnage being involved. Other gas companies are dickering on pipe. Details regarding tonnages are withheld. Quotations on cast iron pipe follow: F.o.b. Boston common rate points, 6-in. to 12-in., inclusive, \$62.10 per ton; 16-in. and larger, \$60.10 to \$61.10 per ton. The usual \$5 differential is quoted on Class A and gas pipe. The Metropolitan District Commission, Boston, will receive bids until early next month for furnishing and laying 18,000 ft. 54-in. cast iron or steel water pipe.

Coke.—Specifications against contracts for by-product foundry coke are running just about even with those last month, thereby indicating New England foundries are no busier. One pig iron agency here, probably handling more coke than any other, reports that customers have not taken more than 35 per cent of the coke they contracted for the last half of this year. Foundries are in no hurry to stock up for the winter; consequently both the New England Coal & Coke Co. and the Providence Gas Co. are running their ovens largely on orders for domestic fuel. Both firms continue to quote \$12.50 delivered in New England for by-product foundry coke.

Old Material.—Activity in old material centers largely in heavy melting steel, pipe, machine shop turnings and mixed borings and turnings, for eastern Pennsylvania shipment. Most of the heavy melting steel taken was purchased around \$12.50 a ton on cars, pipe \$12, machine shop turnings \$9 and mixed borings and turnings \$8.75. A Vandergraff, Pa., interest is in the market for 200 ton lots of heavy melting steel, but at a price which allows little, if any, profit to shippers at going market prices. The Bethlehem Steel Co. is reported as having bought a large tonnage of steel at \$17 delivered, and a Weirton, W. Va., mill a round tonnage at \$18. The market for machinery cast is more active, but local dealer's prices are considerably above those at which foundries can buy material elsewhere. Bids closed Sept. 23 on 85 cars of miscellaneous mate-

rial offered by the Boston & Maine Railroad, the largest item of which was 17 cars of rails.

The following prices are for gross ton lots delivered consuming points:

No. 1 machinery cast.....	\$19.50 to \$20.00
No. 2 machinery cast.....	16.50 to 17.00
Stove plates	15.00 to 15.50
Railroad malleable	17.00 to 17.50

The following prices are offered per gross ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel.....	\$12.50 to \$13.00
No. 1 railroad wrought.....	13.50 to 14.00
No. 1 yard wrought.....	12.50 to 13.00
Wrought pipe (1-in. in diam., over 2 ft. long).....	11.50 to 12.00
Machine shop turnings.....	8.50 to 9.00
Cast iron borings, chemical.....	10.50 to 10.75
Cast iron borings, rolling mill.....	8.50 to 9.00
Blast furnace borings and turnings.....	8.50 to 9.00
Forged scrap and bundled skeleton.....	9.00 to 9.50
Shafting	18.00 to 19.00
Street car axles.....	18.00 to 19.00
Rails for rolling.....	13.50 to 14.00

St. Louis

Weakness Develops in Pig Iron and Old Material Prices

ST. LOUIS, Sept. 23.—The pig iron market is slightly weaker, and there is a tendency on the part of makers to shade prices if this is necessary to get orders. Buying was light during the last week, and there is a scarcity of inquiries. Stove plants and melters in the district are hesitating about placing orders for iron until they have orders for the finished product in hand. The principal sale of the week was 2000 tons of foundry iron to an East Side melter for October and November delivery. This was made by the St. Louis Coke & Iron Co., which also sold 600 tons of foundry iron to an Atchison, Kan., melter for fourth quarter delivery, and 250 tons in scattering orders. A local foundry is in the market for 1500 to 2000 tons; a northern Illinois melter wants 1000 to 1500 tons of malleable, and a stove plant in the district wants 400 tons of Northern iron.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices \$2.16 freight from Chicago, \$3.28 from Florence and Sheffield (rail and water), \$5.17 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25..	\$23.16
Northern malleable, sil. 1.75 to 2.25	23.16
Basic	23.16
Southern fdy., sil. 1.75 to 2.25 (rail)	\$23.17 to 23.67
Southern fdy., sil. 1.75 to 2.25 (rail and water).....	21.28 to 21.78
Granite City iron, sil. 1.75 to 2.25 22.31 to 22.81	

Finished Iron and Steel.—Small orders continue the rule for finished iron and steel. Manufacturers using steel products seem to be under the spell of the hand-to-mouth idea, and will not anticipate their wants to any degree. Nothing is coming from the oil fields to speak of, and the railroads have issued no inquiries for anything more than two carloads. Mills are still waiting for word as to rail requirements for 1925.

For stock out of warehouse we quote: Soft steel bars, 3.35c. per lb.; iron bars, 3.35c.; structural shapes, 3.45c.; tank plates, 3.45c.; No. 10 blue annealed sheets, 4.10c.; No. 28 black sheets, cold-rolled one pass, 6c.; cold rolled rounds, shafting and screw stock, 4.15c.; structural rivets, 3.90c.; boiler rivets, 4.10c.; tank rivets, $\frac{3}{4}$ -in. and smaller, 60 per cent off list; machine bolts, 55 and 5 per cent; carriage bolts, 40 and 5 per cent; lag screws, 60 and 5 per cent; hot pressed nuts, squares or hexagons, blank or tapped, \$3.50 off list.

Coke.—Consumers of foundry coke are not buying very much these days, but they are pressing for deliveries against contracts, indicating how closely they are operating. A slight improvement is noted in the buying of domestic coke by dealers, who are beginning to give some thought to their supplies for the winter, which has been a sadly neglected matter.

Old Material.—Weakness is reported in the market for old material, with melting steel and specialties lower. The sales of 10,000 tons of specialties and melting rails to one East Side melter and about 7000 tons of melting steel to another East Side concern are reported, but they were made at concessions of from 25c.

to \$1 a ton. Pressure of distress cars was one of the weakening factors in the market. Railroad lists issued include: Missouri Pacific, 400 tons (specialties); Chicago & Alton, 800 tons; San Antonio & Aransas Pass, 1300 tons; International & Great Northern, 3000 tons, and Chicago, Burlington & Quincy, 5000 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails	\$16.50 to \$17.00
Rails for rolling	18.00 to 18.50
Steel rails less than 3 ft.	19.00 to 19.50
Relaying rails, 60 lb. and under	25.00 to 26.00
Relaying rails, 70 lb. and over	32.50 to 33.50
Cast iron car wheels	17.50 to 18.00
Heavy melting steel	15.25 to 16.75
Heavy shoveling steel	15.25 to 17.75
Frogs, switches and guards cut apart	17.50 to 18.00
Railroad springs	20.00 to 20.50
Heavy axles and tire turnings	12.50 to 13.00
No. 1 locomotive tires	17.00 to 17.50
Per Net Ton	
Steel angle bars	16.00 to 16.50
Steel car axles	19.50 to 20.00
Iron car axles	24.00 to 24.50
Wrought iron bars and transoms	18.25 to 18.75
No. 1 railroad wrought	13.00 to 13.50
No. 2 railroad wrought	14.00 to 14.50
Cast iron borings	10.50 to 11.00
No. 1 busheling	13.50 to 14.00
No. 1 railroad cast	17.50 to 18.00
No. 1 machinery cast	18.00 to 18.50
Railroad malleable	14.50 to 15.00
Machine shop turnings	8.00 to 8.50
Champion bundled sheets	8.50 to 9.00

Cincinnati

Moderate Activity in Pig Iron—Old Material Prices Decline

CINCINNATI, Sept. 23.—The pig iron market displayed fair activity last week, although sales individually were not large. There was one of 1500 tons, one of 1000, and several of 500 tons, in addition to a number running from 100 to 300. Both Northern and Southern grades were in demand, with prices in the South showing more strength and those in the North unchanged. With the recent purchase of 80,000 tons of Birmingham iron by a pipe maker, the market there has strengthened considerably, and furnaces have advanced from \$17.50 to \$18, base, at which most of the sales were made last week. It is still possible to buy Tennessee iron at \$17.50, however, although this price may be withdrawn at any time. In the North, \$20, Iron-ton, is the prevailing quotation, but in one instance at least a sale was made by a broker at \$19.50, Iron-ton basis, on resale iron. There is little activity in Bessemer, basic or silvery grades, but charcoal sales were more numerous, including one of 300 tons. Shipments from furnace yards are improving steadily, and altogether, while the melt shows only a slight improvement, conditions are encouraging. The Portsmouth furnace of the Wheeling Steel Corporation has blown in, and one Columbus furnace of the American Rolling Milling Co. has blown out.

Based on freight rates of \$4.05 from Birmingham and \$2.27 from Iron-ton we quote f.o.b. Cincinnati:

Southern fdy., sil. 1.75 to 2.25 (base)	\$21.55 to \$22.05
Southern fdy., sil. 2.25 to 2.75	22.05 to 22.55
Southern Ohio silvery, 3 per cent	31.77
Southern Ohio fdy., sil. 1.75 to 2.25	22.27
Southern Ohio, basic	21.77
Southern Ohio malleable	22.27

Tool Steel.—Slightly improved demand for tool steels is reported, but the volume is still very light. No price concessions are being made, however, the range on high-speed steel, 18 per cent tungsten, being from 70c. to 95c. per lb.

Sheets.—Little increase is reported in the demand for sheets, and orders for carload lots and less are about the only business being placed. Prices continue to show weakness, especially in black sheets, where 3.35c., Pittsburgh, is becoming more common. The range on blue annealed is from 2.60c. to 2.70c., and on galvanized 4.50c. to 4.60c., with automobile body sheets steady at 4.75c., all Pittsburgh base.

Reinforcing Bars.—Small orders continue to form

the bulk of the tonnage being placed, and the number of these is increasing. Prices show little change. New billet stock is now quoted at 2.05c. to 2.15c., and rail steel bars at 1.90c. to 2.10c. mill.

Structural Activity.—Inquiry is light in this immediate territory, and no awards of consequence are reported.

Finished Materials.—Orders running from carload lots to 100 and 200 tons were more common last week, especially for bars and plates. Most of the business in bars was booked on the basis of 2.10c., Pittsburgh, and on plates at 1.90c. to 2c., Pittsburgh. These prices can be shaded on attractive tonnages, and prices of 2c. having appeared on bars and 1.80c. on plates. Shapes, apparently, are firm at 2c., Pittsburgh. There is considerably more activity in wire products, and while concessions are reported, the market is fairly well established at \$2.80 per keg for nails, and \$2.55 per 100 lb. for plain wire. Light rails, in small demand, are nominally quoted at 1.85c., Pittsburgh, but as 1.70c. or even less was done several weeks ago on an order for 1000 tons, the market today is hardly quotable at more than 1.75c. Reports of bands being quoted at 2.40c., with hoops at 2.35c. in several cases, are current, and the market range appears to be from 2.40c. to 2.60c., business having been placed at both extremes.

Warehouse Business.—Local jobbers report sales to date in September running considerably ahead of the same period of August, which was the best month since early spring. Prices are firmly maintained.

Cincinnati jobbers quote: Iron and steel bars, 3.30c.; reinforcing bars, 3.30c.; hoops, 4.35c.; bands, 3.95c.; shapes, 3.40c.; plates, 3.40c.; cold-rolled rounds, 4.55c.; cold-rolled flats, squares and hexagons, 4.55c.; open-hearth spring steel, 4.75c. to 5.75c.; No. 10 blue annealed sheets, 3.90c.; No. 28 black sheets, 4.60c.; No. 28 galvanized sheets, 5.75c.; No. 9 annealed wire, 3.30c.; common wire nails, \$3.30 per keg base; cement coated nails, \$3 per keg.

Coke.—There is little change in the demand for furnace or foundry coke, but domestic fuels are fairly active. Prices are unchanged, and indications point to present quotations holding for next month's shipment.

Connellsville furnace, \$3; foundry, \$4.50 to \$5.50; New River foundry, \$8.50 to \$9; Wise County furnace, \$3.75; foundry, \$4.50 to \$5.50; by-product foundry, \$6.50, Connellsville basis.

Old Material.—After a short period of fair activity the scrap market has had a reaction and prices on all grades are at least 50c. per ton lower. There were some sales of various grades made at \$1 below last week's prices. The reaction, however, is expected to be a temporary one, and dealers believe that another upturn is imminent and that it will be steady.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton	
Heavy melting steel	\$14.00 to \$14.50
Scrap rails for melting	12.50 to 13.00
Short rails	18.50 to 17.00
Relaying rails	39.00 to 29.50
Rails for rolling	14.50 to 15.00
Old car wheels	13.00 to 13.50
No. 1 locomotive tires	14.50 to 15.00
Railroad malleable	15.00 to 15.50
Agricultural malleable	13.50 to 14.00
Loose sheet clippings	10.00 to 10.50
Champion bundled sheets	11.00 to 11.50

Per Net Ton	
Cast iron borings	9.50 to 10.50
Machine shop turnings	8.50 to 9.00
No. 1 machinery cast	17.50 to 18.00
No. 1 railroad cast	15.00 to 15.50
Iron axles	21.00 to 21.50
No. 1 railroad wrought	10.50 to 11.00
Pipes and flues	7.50 to 8.00
No. 1 busheling	9.50 to 10.00
Mixed busheling	7.50 to 8.00
Burnt cast	10.00 to 10.50
Stove plate	10.00 to 10.50
Brake shoes	11.50 to 12.00

Anthracite coal production is reported by the United States Geological Survey to have amounted in the week ended Sept. 13 to 1,820,000 net tons, compared with 1,451,000 net tons in the previous week and with 2000 tons in the corresponding week of last year, when the short strike was on. For this year to date the total amounts to 64,058,000 tons, compared with 68,490,000 tons in the corresponding period of last year.

Philadelphia

Steel and Pig Iron Business Dull and Without Feature—Prices No Stronger

PHILADELPHIA, Sept. 23.—With more than three weeks of September gone, the expected fall revival of steel and pig iron buying has not developed and, as the Presidential election is only six weeks away, it is the opinion of many in the trade that conservatism will continue to mark the attitude of buyers until the results of the election are known. The past week has been dull, with no signs of the expected revival at hand. Even in scrap, which has had a firm undertone under fair demand, there has been a slight reaction, and the sale of a fairly large tonnage of No. 1 heavy melting steel at \$17 possibly expresses the belief of scrap brokers that the top of the present movement has been reached until there shall have been a further marked increase in the demand for finished steel.

Pig Iron.—Not in some time have local sellers of pig iron had a quieter week. Sales have been small in the aggregate and the individual tonnages also have been small. There has been no real test of the market and prices remain at \$20.50, furnace, for No. 2 plain, and at \$21, furnace, for No. 2X, with indications that these prices would be shaded by perhaps one or two furnaces on desirable tonnage. Although some buyers are covered only in part for fourth quarter, and others have bought very little for that period, consumers are showing little interest in forward buying, it being apparent that during the next few months they will be able to obtain spot shipments as they need them. The largest inquiry in the market, that of the Pennsylvania Railroad for 5000 tons, is still pending, but action is expected this week.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to \$1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	\$21.26 to \$22.13
East. Pa. No. 2X, 2.25 to 2.75 sil.	21.76 to 22.63
East. Pa. No. 1X.....	22.26 to 23.13
Virginia No. 2 plain, 1.75 to 2.25 sil.	23.17 to 23.67
Virginia No. 2X, 2.25 to 2.75 sil.	23.67 to 24.17
Basic delivered eastern Pa.....	20.00 to 21.00
Gray forge	21.00 to 22.00
Malleable	22.00 to 22.50
Standard low phos. (f.o.b. furnace)	24.00 to 25.00
Copper bearing low phos. (f.o.b. furnace)	24.00 to 25.00

Ferroalloys.—Sales of ferromanganese are few and far between and consist only of carload lots. The British agents continue to quote \$95, seaboard, while the nominal quotation of the leading domestic producer is \$100, furnace. Spiegeleisen is \$32, furnace.

Billets.—While there are few sales of importance, prices have weakened and almost any mill will now quote \$36, Pittsburgh basis, for open-hearth re-rolling billets and \$41 for forging quality.

Plates.—Eastern plate mills find no improvement in buying, the volume of orders in the past week being about the same as in the preceding two or three weeks. Prices continue unchanged, some mills quoting 1.65c., Pittsburgh, but on fairly attractive lots quotations of 1.60c. have been obtainable by some buyers. On small lots the mills have not been so ready to make low prices, 1.70c. and higher being obtained in some instances.

Structural Shapes.—Demand for structural shapes in this district has fallen off and there is keener competition for business. Prices are weak, not above 1.90c., Pittsburgh, on anything from a carload upward and on the larger lots 1.90c. has been shaded. The Shoemaker Bridge Co. will fabricate 2000 tons of steel for the new building of the Liberty Title & Trust Co.

Bars.—Although one or two mills continue to quote 2.10c., Pittsburgh, on bars, quotations of 2c. are obtainable from other sources of supply. On concrete reinforcing bars, 2c. has been shaded. Eastern bar iron mills are quoting 2c., Pittsburgh, and in some instances 2.20c., mill. A so-called refined iron bar is now being offered by one producer at 2.20c., mill.

Warehouse Business.—Prices for steel out of stock seem to vary somewhat according to the source of supply. Some jobbers are quoting the following prices for local delivery:

Soft steel bars and small shapes, 3.10c.; iron bars (except bands, 3.10c.; round edge iron, 3.50c.; round edge steel, iron finished, 1½ x ½ in., 3.50c.; round edge steel planished, 4.30c.; tank steel plates, ¼ in. and heavier, 3.10c.; tank steel plates, ½ in., 3.25c.; blue annealed steel sheets, No. 10 gage, 3.75c.; black sheets, No. 28 gage, 4.75c.; galvanized sheets, No. 28 gage, 5.85c.; square twisted and deformed steel bars, 2.85c.; structural shapes, 3.10c.; diamond pattern plates, ¼ in., 5.30c.; ½ in., 5.50c.; spring steel, 5c.; round cold-rolled steel, 4.05c.; squares and hexagons, cold-rolled steel, 4.55c.; steel hoops, 1 in. and wider, No. 20 gage and heavier, 4.10c.; narrower than 1 in., all gages, 4.60c.; steel bands, No. 12 gage to ¼ in., inclusive, 3.85c.; rails, 3.35c.; tool steel, 8.60c.; Norway iron, 6.75c.

Old Material.—An Eastern steel company has bought fairly large tonnages of heavy steel scrap and blast furnace borings and turnings, paying \$17 for the steel scrap and \$13 to \$14.50 for the blast furnace material. These prices on blast furnace borings and turnings represent an advance on that grade, but the sale of steel scrap at \$17 reflects a slight weakness in that grade, inasmuch as a week ago local brokers were unwilling to consider orders at \$17.50. One mill is still offering \$18, however, so the market range may be given as \$17 to \$18. Demand has been light except for the particular transactions above noted.

We quote for delivery at consuming points in this district as follows:

No. 1 heavy melting steel.....	\$17.00 to \$18.00
Scrap rails	17.00 to 18.00
Steel rails for rolling	19.00 to 19.50
No. 1 low phos, heavy 0.04 and under	21.00 to 21.50
Couplers and knuckles	20.00 to 21.00
Rolled steel wheels	20.00 to 21.00
Cast-iron car wheels	18.00 to 18.50
No. 1 railroad wrought	19.00 to 20.00
No. 1 yard wrought	17.00 to 17.50
No. 1 forge fire	14.50 to 15.00
Bundled sheets (for steel works)	14.00 to 14.50
Mixed borings and turnings (for blast furnace use).....	13.00 to 14.00
Machine shop turnings (for steel works use)	14.00 to 14.50
Machine shop turnings (for rolling mill use)	14.00 to 14.50
Heavy axle turnings (or equivalent)	16.50 to 17.00
Cast borings (for steel works and rolling mills)	14.00 to 14.50
Cast borings (for chemical plants)	16.00 to 16.50
No. 1 cast	18.00 to 18.50
Heavy breakable cast (for steel plants)	17.00 to 17.50
Railroad grate bars	15.50 to 16.00
Stove plate (for steel plant use)	15.50 to 16.00
Wrought iron and soft steel pipes and tubes (new specifications)	17.00 to 17.50
Shafting	25.00 to 26.00
Steel axles	24.00 to 25.00

Imports.—In the week ended Sept. 20, the following commodities were imported at the port of Philadelphia: Iron ore from Sweden, 14,185 tons; iron ore from French Africa, 5000 tons; chrome ore from Greece, 500 tons; pig iron from France, 4905 tons; steel shapes from France, 378 tons; steel shapes from Belgium, 69 tons; iron bars from Sweden, 43 tons.

San Francisco

Structural Steel Contracts Make a Fair Tonnage and Include Large Bridge

SAN FRANCISCO, Sept. 17.—Although the trading in steel and iron in this vicinity is not up to the expectations of the selling interests, there is nevertheless considerable business in progress, with little prospect for any further trade shrinkage. Business has been quiet during the summer months, chiefly in the booking of new orders, and a careful survey shows conclusively that both mills and foundries have been in active operation, averaging between 70 and 75 per cent of capacity. The first half of the year, taken as a whole, makes a good average showing, and will compare favorably with other parts of the country. It is also safe to say that during the last three or four weeks there has been some improvement, not in prices, but in new business, and small though it may be, it is regarded as an indication of better times ahead. One of the best features of an otherwise quiet market has been the steady de-

mand for structural materials, and while there was some recession in prices, the trade movement was sufficient to develop a profitable business. This branch of the trade still continues active and the weekly booking of tonnage is well maintained. The contract for the steel to be used in the big bridge connecting Antioch with Sherman Island was awarded during the past week to the Dyer Brothers, Golden West Iron Works of this city. It involves a tonnage that will cost a little over \$350,000. The steel is to be delivered at Antioch within five months. Other new orders of the past week aggregate over 3650 tons, mostly in lots from 150 to 600 tons for new buildings in the bay district. Bids are being received for 1060 tons for the Clift Hotel annex, in this city, and plans for two new business edifices in Oakland which will require over 2800 tons are now nearly ready for asking bids.

Pig Iron.—The sales of the past week show a little improvement in volume, and a noticeable increase in the number of inquiries seems to warrant the belief that business improvement may be confidently looked for by the beginning of the fourth quarter. Importers say that the number of small orders has materially increased recently, so that a considerable tonnage in the aggregate has been consumed in this way. The demands for both French and Belgian iron continue good, and supplies are kept well cleaned up. Prices remain steady at about \$26.50 to \$27.50 per ton for round lots. The desirable grades of Scotch and English iron are held a little more firmly, with the price range about \$28.50 to \$29.50 per ton. Los Angeles has been receiving some iron direct and more is on the way; so sales from this city to that locality may be expected to decrease. During the month of August arrivals by sea at this port totaled 2968 tons and nearly half that quantity has come to hand thus far in September. Receipts of domestic iron are liberal but stocks on hand are not over large.

Coke.—The demand for coke continues very moderate as to volume, but while the purchases are mostly confined to small parcels, the business is more evenly distributed. This is considered a favorable indication as showing a more general interest in the trade. Prices are steady and \$18 per ton is readily obtained for desirable grades of foreign coke.

Finished Steel and Iron.—The general trade situation remains about the same as two weeks ago, although prices in some lines show a little stronger tone. Merchant bars are selling in a moderate way at present, with the price ranging between 2.30c. and 2.35c., c.i.f. These figures are low, but they do not seem to stimulate any buying beyond what is required for immediate needs. Advices from Portland, Ore., say the price there is 10c. above the price here. There is some talk among the trade, however, of an advance of about \$4 per ton within a week or so. Inquiries for plates are more extensive following an easing off in prices. Sellers now quote 2.35c. for small lots and round parcels could doubtless be obtained as low as 2.30c. The price on structural shapes also shows some easiness, not because of lack of demand but more particularly as a result of extremely keen competition among sellers. This feature has become so sharply defined lately that it is said structural steel for building purposes is now cheaper in San Francisco than in any other city in the United States. The sales of wire were largely increased during the past two weeks by orders for export to the Orient. Rivets and nuts are selling well, with prices held steady. Sheet steel is a little higher recently and 4.60c. to 4.65c. is now firmly asked. Increased activity is noted in cast iron pipe, particularly for 4- and 6-in., and bids are now being solicited for about 4250 tons, divided among six municipalities.

Old Material.—Available supplies are abundant and sales are not as large as might be desired. Buyers purchase mostly in small lots and almost invariably seek some concession in the asking figures. Prices on heavy melting steel, borings and the better grades of forged scrap are steady at \$11 to \$11.50 per ton. Quantities of mixed low grade scrap are nominal and meet with small demand. Both mills and foundries are said to be well supplied for the present.

Cleveland

Chaotic Conditions Caused by Abandoning of Pittsburgh Basing System

CLEVELAND, Sept. 23.—The steel market is in a chaotic condition because of the abandonment of the Pittsburgh base by the Steel Corporation and interest in the straightening out of the tangle is overshadowing all other market features. Cleveland and Youngstown mills and other independent mills in the Ohio territory are waiting to see how the Steel Corporation units work out their plans for naming prices, and until the situation becomes clear are still quoting the Pittsburgh base. Many of the problems involved are still unsolved. Several mills, after the issuance of the Federal Trade Commission's cease and desist order, began quoting delivered prices instead of the Pittsburgh plus prices. The Carnegie Steel Co. is quoting only delivered prices and, following its past policy, allows the consumer freight from the shipping point in the invoice. The American Steel & Wire Co. has started to use Cleveland as a basing point for some of its wire products made in Cleveland. The Bethlehem Steel Co. and some other Eastern mills have adopted the policy of quoting delivered prices with freight allowed to destination.

The various complications and confusion resulting from changing from the Pittsburgh basing point to the new pricing method have resulted in much uncertainty among buyers and caused considerable business to be held back. However, an outstanding feature of the situation as it exists today is that prices in this territory are in reality still based on the Pittsburgh market price. Various plans are being suggested for simplifying the new price structure, including the adoption of a price zoning system.

Iron Ore.—Consumption of Lake Superior ore during August amounted to 2,635,759 gross tons, a gain of 220,459 tons over July, according to a report of the Lake Superior Iron Ore Association. Consumption during August last year was 5,353,147 tons. The increased consumption reflects the slight increase in blast furnace operations. On Aug. 31 there were 127 furnaces in blast using Lake Superior ore, an increase of nine during the month. Ore on hand at furnaces Sept. 1 was 29,248,369 tons and the total at furnaces and Lake Erie docks Sept. 1 was 35,703,093 tons as compared with 32,831,227 tons on the same day a year ago. Interior furnaces in the central district consumed in August 1,458,283 tons, or a gain of 197,950 tons over July. Eastern furnaces consumed 47,309 tons, a gain of 6361 tons, and Lake front furnaces consumed 1,057,464 tons, a gain of 24,900 tons. All rail furnaces consumed 72,703 tons, a loss of 8752 tons for the month.

Pig Iron.—Buying for the first quarter has been started in rather limited volume, following inquiries for that delivery previously noted. One Lake furnace during the week booked several thousand tons in first quarter contracts for foundry and malleable iron, including one 3000-ton lot at its current market price of \$20, and one or two other producers in this district have taken some tonnage for the same delivery. Some other first quarter business is pending, but a general buying movement for that delivery is not expected. First quarter sales that have been made have resulted from pressure on the part of consumers rather than any desire of producers to sell and some furnaces are refusing to quote for the first quarter. Sales for the remainder of this year are being made in rather moderate volume, although a few good-sized lots were placed during the week. The American Brake Shoe & Foundry Co. has purchased about 6700 tons of foundry iron for its Cleveland, Pittsburgh and Rochester plants, 1000 tons for Cleveland and a part of the iron for its other plants going to a Cleveland interest. The Central Foundry Co. is reported to have placed 6800 tons in Buffalo for its various plants at \$19. Efforts

to establish the Lake and Valley markets on a firm \$20 base so far appear to have been successful. In the Valley district a \$19.50 quotation is appearing on foundry and malleable iron and one Lake furnace is going to \$19.50 and possibly lower for shipments to some outside competitive points. However, some producers are holding firm at \$20. Locally, the market is firm at \$20.50 at furnace for Cleveland delivery and one producer is now trying to get 50c. more for prompt shipment orders. In Michigan, foundry and malleable grades are quoted at \$20. Steel making iron is inactive. A recent inquiry from the Follansbee Bros. Co. for basic iron brought out a \$20 quotation from a Cleveland producer. Shipments are holding up well. The amount shipped by Cleveland interests this month will exceed considerably the amount of iron they will make.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a \$3.02 freight rate from Jackson and \$6 rate from Birmingham:

Basic, Valley furnace.....	\$19.00
N'th'n No. 2 fdy., sil. 1.75 to 2.25	21.00
Southern fdy., sil. 1.75 to 2.25...	23.50
Malleable	21.00
Ohio silvery, 8 per cent.....	32.52
Stand. low phos., Valley furnace.	\$27.50 to 28.00

Bolts, Nuts and Rivets.—Bolt and nut manufacturers report that the trade is contracting freely for the fourth quarter at the new prices and that specifications on third quarter contracts show a gain. Rivet prices have stiffened and a 2.60c. price is now being maintained better than for some time. Manufacturers of bolts, nuts and rivets expect to continue their policy in quoting f.o.b. Pittsburgh and Chicago.

Semi-Finished Steel.—Inquiries have come out for fourth quarter contracts for sheet bars in rather large tonnages. We note the sale of 2000 tons to an Ohio mill at \$37.50, Cleveland, and 400 tons at \$37.50, Youngstown. Billets and slabs are quoted at \$36, Pittsburgh.

Steel Bars, Plates and Structural Material.—Sales are keeping up in good volume, and September business will show considerable gain over August. Steel bars were more active during the week than other lines, considerable business in fair sized lots coming from various sources. The Cleveland Union Terminal Co. has sent out an inquiry for 19,000 tons of billet steel bars for reinforcing work covering its estimated requirements for the Union Station project during a construction period of over four years. Of this amount, it is estimated that 600 tons will be required this year and 4500 tons a year during the ensuing four years. Mills are asked to name prices for the entire period, based on IRON AGE quotations. Automobile companies continue to buy sparingly, and only for early requirements. Automobile plants in Detroit and vicinity are now manufacturing approximately 50,000 cars per week, including an output of 35,000 at the Ford plant, and the rate of production is not expected to be increased this year. Inquiries are expected from the Ford interests shortly for 10,000 to 20,000 tons of structural steel for an open-hearth plant and 3000 tons for a car shop at Flatrock, Mich. Prices show little change, although some of the recent minimum quotations have become more common. The usual range of steel bars is from 2.05c. to 2.10c., Pittsburgh, with freight to destination added, although some buyers are able to place desirable lots at 2c. The Cleveland delivery price ranges from 2.19c. to 2.29c.. Plates are commonly quoted at 1.90c., with freight from Pittsburgh added, although 1.85c. is being quoted and 2c. has not disappeared for small lots. Structural material has settled down to 2c., Pittsburgh. Hoops have sold at 2.50c., but the common range is 2.55c. to 2.60c. Bands are quoted at 2.40c., these prices being Pittsburgh base.

Jobbers quote steel bars, 3.10c.; plates and structural shapes, 3.20c.; No. 28 black sheets, 4.35c.; No. 28 galvanized sheets, 5.45c.; No. 10 blue annealed sheets, 3.45c. to 3.60c.; cold-rolled rounds, 3.90c.; flats, squares and hexagons, 4.40c.; hoops and bands, 1 in. and wider and 20 gage or heavier, 3.85c.; narrower than 1 in. or lighter than No. 20 gage, 4.35c.; No. 9 annealed wire, \$3.30 per 100 lb.; No. 9 galvanized wire, \$3.75 per 100 lb.; common wire nails, \$3.40 base per 100 lb.

Sheets.—Sheets are moving rather slowly, with virtually no change in the price situation.

Coke.—There is some activity in by-product foundry coke for prompt shipment, which is quoted by the northern Ohio producer on a \$5.50 Connellsville basis. Connellsville foundry coke is quiet and unchanged at \$4.25 to \$5.50.

Old Material.—Following the recent flurry, the market has become dull and lacks the firmness of a week ago. Heavy melting steel has declined from 25c. to 50c. a ton. There was some activity a few days ago among dealers covering on this grade for Warren delivery. The \$19.50 price that was being paid brought out a great deal more tonnage than was required and dealers are now offering only \$19 to \$19.25. Little new buying by consumers is reported and dealers are not trying to force sales. A local mill bought 500 tons of machine shop turnings at \$14.25, but this was distress material. Small lots of mixed borings and turnings brought \$15. In our report last week machine shop turnings were quoted at \$13.75 to \$16. The latter figure was a typographical error and should have been \$14.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel	\$16.75 to \$17.25
Rails for rolling	17.00 to 17.25
Rails under 3 ft.	18.00 to 19.00
Low phosphorus melting.....	19.00 to 19.25
Cast iron borings	14.75 to 15.00
Machine shop turnings.....	13.75 to 14.25
Mixed borings and short turnings	14.75 to 15.00
Compressed sheet steel	14.50 to 14.75
Railroad wrought	15.00 to 15.50
Railroad malleable	18.50 to 18.75
Light bundled sheet stampings..	13.75 to 14.00
Steel axle turnings	15.00 to 15.50
No. 1 cast	19.25 to 19.50
No. 1 busheling	14.25 to 14.75
Drop forge flashings	13.50 to 13.75
Railroad grate bars	15.00 to 15.50
Stove plate	15.00 to 15.50
Pipes and flues	13.00 to 13.50

The medical department of the Colorado Fuel & Iron Co. has made its 43d annual report to the president of the company, and it appears in the form of a 16-page pamphlet, plentifully illustrated. Dr. R. W. Corwin, who is chief of the medical and surgical staff, has brought his department up to a high state of efficiency, though having to deal with a greater variety of problems than exists at most iron and steel manufacturing centers. The cases treated in the year covered by the report number 49,162 at the mines, 46,201 at the steel works dispensary, and 13,200 at the Minnequa hospital. The total number of surgical cases was 2961, representing 732 major and 1727 minor operations, and 502 out patients coming to the hospital for surgical treatment. In comment on the operating room, Dr. Corwin refers to its "lead gray" tone, in contrast with the white that is commonly found. Walls, ceiling and floor are sheet lead unpainted—6 lb. to the sq. ft. on the walls and ceiling and 12 lb. on the floor. The dark lead color is not only protective to the eyes, but live steam can be used for sterilizing the walls without injuring them. Black sheets are used in operations, as well as black towels for the protection of wounds, emphasizing the field of operations and protecting the operators' and assistants' eyes.

The "American Buyers' Guide," for 1924-1925, to give American manufacturers, exporters and importers of German merchandise a classified directory of importers and sources of supply, and at the same time, handbook information upon many questions connected with selling and buying in Germany, has been published by the American Chamber of Commerce in Germany, Equitable Building, Friedrichstrasse 59-60, Berlin W. 8, Germany. The principal features of the guide comprise some 2250 names of manufacturing, import and export firms, banks, forwarders and agents, alphabetically arranged, showing address, branch of business, cable address and names of American representatives. Articles of merchandise form another alphabetical and classified section with sources indicated. Every purchaser of "American Buyers' Guide" will also receive regularly without additional cost "German Trade Reports and Opportunities," which may be obtained by check for \$2 addressed to the chamber.

FABRICATED STEEL BUSINESS

Awards During the Week Total 18,746 Tons and Inquiries Are 17,484 Tons

A fair volume of structural steel work, mostly in small jobs, has been contracted for during the past week. The aggregate of awards is 18,746 tons, as reported to THE IRON AGE, while new work up for bids amounts to 17,484 tons. Among the projects pending is an office building in New York requiring 5000 tons. The largest award was 3274 tons for a store building in Chicago. Awards were:

Liberty Title & Trust Co. Building, Philadelphia, 2000 tons, to Shoemaker Bridge Co.

City of New York, Department of Plant and Structures, two housing stations, 400 tons, to Hay Foundry & Iron Works.

Loft building, 13 West Thirty-sixth Street, New York, 200 tons, to Hay Foundry & Iron Works.

Apartment building for John K. Terten at 1088 Park Avenue, New York, 1800 tons, to Paterson Bridge Co.

Apartment building for Michael Paterno at Fifth Avenue and Eighth-third Street, New York, 600 tons, to Paterson Bridge Co.

State of New York, work on Long Island, 125 tons, to American Bridge Co.

Parochial school, Mount Vernon, N. Y., 125 tons, to American Bridge Co.

Bancroft Hotel, Worcester, Mass., addition, 400 tons, to Eastern Bridge & Structural Co.

Apartment building, West End Avenue and Seventy-fourth Street, New York, 850 tons, to Easton Structural Steel Co.

Apartment building, 23 East Seventy-fourth Street, New York, 400 tons, to Easton Structural Steel Co.

Laundry building, 134th Street and Southern Boulevard, New York, 280 tons, to George A. Just Co.

Apartment building, East Forty-ninth Street, New York, 300 tons, to Hinkle Iron Co.

Lexington high school, Worcester, Mass., 150 tons, to Eastern Bridge & Structural Co.

Manufacturing building, Boston, 135 tons, to Boston Bridge Works.

School, Newburgh, N. Y., 100 tons, to Belmont Iron Works. New York Central Railroad, upholstery shop, Albany, N. Y., 150 tons, to Belmont Iron Works.

Memorial Building, Plymouth, Mass., 100 tons, to Palmer Steel Co.

School, Meriden, Conn., 200 tons, to Bethlehem Fabricators, Inc.

Hospital, Waterbury, Conn., 150 tons, to McClintic-Marshall Co.

Vulcan Iron Works, New Britain, Conn., 400 tons, to Berlin Construction Co.

Atlantic Coast Line, bridge, 250 tons, to an unnamed fabricator.

Mystic Iron Works, Boston and Everett, blast furnace plant buildings, 1400 tons of structural steel to McClintic-Marshall Co. and 1400 tons of plates for furnace and stack to William B. Pollock Co., Youngstown.

Morgan Construction Co., Worcester, Mass., plant addition, 200 tons, to Eastern Bridge & Structural Co., Worcester.

Malden Spinning Co., Malden, Mass., manufacturing plant, 150 tons, to Boston Bridge Works.

American Radiator Co., plant building, Chicago, 250 tons, to Wendnagel & Co.

W. A. Wiebolt & Co., Chicago, Midwest store building, 3274 tons, to American Bridge Co.

Apartment house, Lake Shore Drive and Elm Street, Chicago, 1510 tons, to Kenwood Bridge Co.

Second National Bank building, Saginaw, Mich., 915 tons, to Russell Wheel & Foundry Co.

Illinois Central, first section catenary bridges and trestles, Chicago, 430 tons, to Continental Bridge Co.

Armour & Co. boiler house and glue plant, Chicago, 406 tons, to Lake Side Bridge & Steel Co.

Rock Island Lines, repairs to Archer Avenue, Twenty-second and Twenty-third Streets viaducts, Chicago, 220 tons, to McClintic-Marshall Co.

Chicago & North Western Railway, plate washers and rods for ore dock No. 6, Escanaba, Mich., 151 tons, to unnamed fabricator.

Alabama Power Co., Birmingham, 600 tons, to Virginia Bridge & Iron Co.

Gas holder, Albany, Ga., 125 tons, to Stacey Mfg. Co.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

Office building, Madison Avenue and Forty-ninth Street, New York, for Harby, Abrons & Mellus, Inc., 5000 tons.

Y. M. C. A. building, Flushing, N. Y., 350 tons.

Apartment building, 317 West Seventy-eighth Street, New York, 600 tons.

Garage, Park Avenue and 128th Street, New York, 200 tons.

L. S. Plaut & Co., Newark, N. J., department store addition, 2000 tons.

School building, White Plains, N. Y., 200 tons.

Wilmington, Del., bridge, 200 tons.

City of New York, pier shed on East River, 200 tons.

Pennsylvania Railroad, bridge, 300 tons.

New York Central, bridge, 300 tons.

Southern Railway, bridge, 150 tons.

Cooperative Office building, Hartford, Conn., 400 tons.

Desopo Business Block, Hartford, Conn., 350 tons.

Terry building, Ansonia, Conn., 250 tons.

Telephone building, Poughkeepsie, N. Y., 300 tons.

Walker-Gordon Laboratory, Boston, 200 tons.

Franklin School, Wakefield, Mass., 100 tons.

Telephone building, Boston, 600 tons.

Washington Street Garage, Boston, 200 tons.

High school, Medford, Mass., 150 tons.

Y. W. C. A., Worcester, Mass., 200 tons.

Spinning mill, Webster, Mass., 100 tons.

School, Springfield, Mass., 100 tons.

School, Enfield, Conn., 150 tons.

High school, Monson, Mass., 110 tons.

General Electric Co., Schenectady, N. Y., 250 tons.

Providence, R. I., hospital, 109 tons of steel and 196 tons concrete bars.

Hartford, Conn., library and school, 200 tons.

Masonic Temple, Manchester, N. H., 215 tons.

Stockyards Exchange Bank Building, Omaha, Neb., 2000 tons.

Staley Mfg. Co., plant building, Decatur, Ill., 500 tons.

Flint, Mich., store building, 300 tons.

Chesapeake & Ohio Railroad, station at Ashland, Ky., 600 tons, bids in.

Central of Georgia Railway, girder spans, 100 tons, bids in.

Nurses' Home, Cleveland, 400 tons, new bids asked for.

RAILROAD EQUIPMENT BUYING

Further Purchases of Freight Cars in Prospect, Including 8000 from B. & O.

Although the week has been quiet in the railroad equipment field, it is reported that several roads will enter the market shortly for large amounts of rolling stock. The Baltimore & Ohio may buy 8000 and the Burlington board of directors has authorized the purchase of 3000. The New York Central is expected to buy and the Illinois Central may place further orders.

The board of directors of the Chicago, Burlington & Quincy has authorized the purchase of 2000 automobile, 500 coal and 500 stock cars, but inquiries have not yet been put out.

The Illinois Central has placed 200 express refrigerator cars with the American Car & Foundry Co., this being in addition to the 6200 freight cars recently ordered.

The Great Northern is asking for estimates on 600 40-ton and 100 50-ton automobile cars.

The National Railways of Mexico placed 200 standard gage and 50 narrow gage tank cars with the General American Tank Car Corporation and 50 gondola cars with the General American Car Co.

The Monon ordered 250 sets of steel underframes from the Pullman Car & Mfg. Corporation.

The Lehigh & New England instead of the Lehigh Valley, as reported last week, ordered repairs on 300 hopper cars from the American Car & Foundry Co.

The Baltimore & Ohio is expected to enter the market for 8000 hopper cars.

The New York Central is also expected to buy freight equipment and it is reported that the Illinois Central may make additional purchases.

Prices Finished Iron and Steel f.o.b. Pittsburgh

Carload Lots

District Mills

Plates

Sheared, tank quality, base, per lb. 1.80c. to 1.90c.

Structural Materials

Beams, channels, etc., base, per lb. 2.00c.
Sheet piling 2.10c. to 2.15c.

Iron and Steel Bars

Soft steel bars, base, per lb. 2.00c. to 2.10c.
Soft steel bars for cold finishing \$3 per ton over base
Reinforcing steel bars, base 2.00c. to 2.10c.
Refined iron bars, base, per lb. 2.90c. to 3c.
Double refined iron bars, base, per lb. 4.50c.
Stay bolt iron bars, base, per lb. 6.50c. to 7.00c.

Hot-Rolled Flats

Hoops, base, per lb. 2.60c.
Bands, base, per lb. 2.40c. to 2.50c.
Strips, base, per lb. 2.25c. to 2.40c.

Cold-Finished Steel

Bars and shafting, drawn or rolled, base, per lb. 2.70c.
Bars and shafting, drawn or rolled, i.c.l., per lb. 2.95c.
Shafting, turned and polished, base, per lb. 2.70c.
Bars, S. A. E. Series, No. 2100 4.25c. to 4.50c.
Bars, S. A. E. Series, No. 2300 6.00c.
Bars, S. A. E. Series, No. 3100 4.90c. to 5.00c.
Strips, base, per lb. 4.00c. to 4.25c.

Wire Products

(To jobbers in car lots)

Nails, base, per keg \$2.75
Bright plain wire, base, No. 9 gage, per 100 lb. 2.50
Annealed fence wire, base, per 100 lb. 2.65
Galvanized wire No. 9, base, per 100 lb. 3.10
Galvanized barbed, base, per 100 lb. 3.45
Galvanized staples, base, per keg 3.45
Painted barbed wire, base, per 100 lb. 3.25
Polished staples, base, per keg 3.20
Cement coated nails, base, per count keg 2.15

Owing to the change in the method of selling wire products, fully explained elsewhere in this issue, Cleveland prices are given on page 793 of this issue.

Bolts and Nuts

Machine bolts, small rolled threads, .60 and 20 per cent off list
Machine bolts, all sizes, cut threads, .60 and 10 per cent off list
Carriage bolts, smaller and shorter, rolled threads, .60 and 10 per cent off list
Carriage bolts, cut threads, all sizes, .60 per cent off list
Hot-pressed nuts, blank or tapped, square 4.50c. off list
Hot-pressed nuts, blank or tapped, hexagons5c. off list
C.p.c. and t. square or hex. nuts, blank or tapped, 4.50c. off list
Eagle carriage bolts65, 10 and 10 per cent off list
Plow bolts50, 10 and 5 per cent off list
Semi-finished hex. nuts:
1/2 in. and smaller, U. S. S. 80, 10, 10 and 5 per cent off list
1/2 in. and larger, U. S. S. 75, 10, 10 and 5 per cent off list
Small sizes, S. A. E. 80, 10, 10 and 5 per cent off list
S. A. E., 1/2 in. and larger 80, 10 and 5 per cent off list
Stove bolts in packages 80, 10 and 5 per cent off list
Stove bolts in bulk 80, 10, 5 and 2 1/2 per cent off list
Tire bolts60 and 10 per cent off list
Bolt ends with hot pressed nuts60 and 10 per cent off list
Bolt ends with cold pressed nuts50 and 10 per cent off list
Turnbuckles, with ends, 1/2 in. and smaller, .55 and 5 per cent off list
Turnbuckles, without ends, 1/2 in. and smaller, .70 and 10 per cent off list
Washers5.75c. to 6.00c.
Lock washers80 per cent off list

Semi-Finished Castellated and Slotted Nuts

(To jobbers and consumers in large quantities f.o.b. Pittsburgh)

	Per 1000	Per 1000		Per 1000	Per 1000
	S. A. E.	U. S. S.		S. A. E.	U. S. S.
1/4-in.	\$4.25	\$4.25	3/8-in.	\$13.25	\$13.50
3/8-in.	4.90	4.90	1/2-in.	16.25	16.50
1/2-in.	5.90	6.25	3/4-in.	22.50	23.00
3/4-in.	7.50	8.50	1-in.	34.00	34.00
1-in.	9.75	10.00	1-in.	53.00	55.00

Larger sizes—Prices on application.

Cap and Set Screws

Milled hex. cap screws85 per cent off list
Milled standard set screws, case hardened, .85 per cent off list
Milled headless set screws, cut thread85 per cent off list
Upset hex. head cap screws, U. S. S. thread, .85 and 10 per cent off list
Upset hex. head cap screws, S. A. E. thread, .85 and 10 per cent off list
Milled studs80 per cent off list

Rivets

Large structural and ship rivets, base, per 100 lb. \$2.60
Small rivets70, 10 and 5 per cent off list

Track Equipment

Spikes, 1/2 in. and larger, base, per 100 lb. \$2.80
Spikes, 1/2 in. and smaller, base, per 100 lb. 3.25
Spikes, boat and barge, base, per 100 lb. 3.25
Track bolts, all sizes, base, per 100 lb. 3.75
Track bolts, heat treated, base, per 100 lb. 4.25
Tie plates, per 100 lb. \$2.40 to 2.50
Angle bars, base, per 100 lb. 2.75

Welded Pipe

Butt Weld

Inches	Steel	Black	Galv.	Inches	Iron	Black	Galv.
1/8	45	19 1/2	1/4 to 3/4	+11	+39		
1/4 to 3/8	51	25 1/2	1/2	22	2		
1/2	56	42 1/2	3/4	28	11		
3/4	60	48 1/2	1 to 1 1/2	30	13		
1 to 3	62	50 1/2					

Lap Weld

2	55	43 1/2	2 to 3	23	7
2 1/2 to 6	59	47 1/2	2 1/2	26	11
7 and 8	56	43 1/2	3 to 6	28	13
9 and 10	54	41 1/2	7 to 12	26	11
11 and 12	53	40 1/2			

Butt Weld, extra strong, plain ends

1/8	41	24 1/2	2 to 3	61	50 1/2
1/4 to 3/8	47	30 1/2	1/4 to 3/4	+11	+54
1/2	53	42 1/2	1/2	21	7
3/4	58	47 1/2	3/4	28	12
1 to 1 1/2	60	49 1/2	1 to 1 1/2	30	14

Lap Weld, extra strong, plain ends

2	53	42	2	23	9
2 1/2 to 4	57	46 1/2	2 1/2 to 4	29	15
4 1/2 to 6	56	45 1/2	4 1/2 to 6	28	14
7 to 8	52	39 1/2	7 to 8	21	7
9 and 10	45	32 1/2	9 to 12	16	2
11 and 12	44	31 1/2			

To the large jobbing trade the above discounts are increased (on black) by one point, with supplementary discount of 5 per cent and (on galvanized) by 1 1/2 points, with supplementary discount of 5 per cent.

Boiler Tubes

Lap Welded Steel	Charcoal Iron
2 to 2 1/4 in. 27	1 1/2 in. +18
2 1/2 to 2 3/4 in. 37	1 3/4 to 1 1/2 in. +8
3 in. 40	2 to 2 1/4 in. -2
3 1/4 to 3 3/4 in. 42 1/2	2 1/2 to 3 in. -7
4 to 13 in. 46	3 1/4 to 4 1/2 in. -9

Beyond the above discounts, 2 fives and 2 1/4 per cent extra are given on lap welded steel tubes and 3 fives on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn	Hot Rolled
1 in. 55-58	3 and 3 1/4 in. 36-39
1 1/4 and 1 1/2 in. 47-50	3 1/2 and 3 3/4 in. 37-40
1 3/4 in. 31-34	4 in. 41-44
2 and 2 1/4 in. 22-25	4 1/2 in. and 5 in. 33-37
2 1/2 and 2 3/4 in. 32-35	

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

Carbon under 0.30 base87 per cent off list
Carbon 0.30 to 0.40, base85 per cent off list
Plus usual differentials and extras for cutting. Warehouse discounts range higher.

Seamless Locomotive and Superheater Tubes

Cents per Ft.	Cents per Ft.
2-in. O.D. 12 gage 15	2 1/4-in. O.D. 10 gage 20
2-in. O.D. 11 gage 16	3-in. O.D. 7 gage 35
2-in. O.D. 10 gage 17	1 1/2-in. O.D. 9 gage 15
2 1/4-in. O.D. 12 gage 17	5 1/2-in. O.D. 9 gage 55
2 1/4-in. O.D. 11 gage 18	5 1/2-in. O.D. 9 gage 57

Tin Plate

Standard cokes, per base box \$5.50

Terne Plate

(Per Package, 20 x 28 in.)

8-lb. coating, 100 lb. base \$11.00	20-lb. coating I. C. \$14.90
8-lb. coating I. C. 11.30	25-lb. coating I. C. 16.20
12-lb. coating I. C. 12.70	30-lb. coating I. C. 17.35
15-lb. coating I. C. 13.95	35-lb. coating I. C. 18.35
	40-lb. coating I. C. 19.35

Sheets

Blue Annealed
Nos. 9 and 10 (base), per lb. 2.60c. to 2.70c.
Box Annealed, One Pass Cold Rolled
No. 28 (base), per lb. 3.40 to 3.50c.

Automobile Sheets

Regular auto body sheets, base (22 gage), per lb. 4.75c.
Galvanized
No. 28 (base), per lb. 4.50c. to 4.60c.

Long Terms

No. 28 gage (base), 8-lb. coating, per lb. 4.95c. to 5c.
Tin-Mill Black Plate
No. 28 (base), per lb. 3.40c. to 3.50c.

Prices of Raw Materials, Semi-Finished and Finished Products

Ores

Lake Superior Ores, Delivered Lower Lake Ports

Old range Bessemer, 55 per cent iron.....	\$5.65
Old range non-Bessemer, 51½ per cent iron.....	4.90
Mesabi Bessemer, 55 per cent iron.....	5.40
Mesabi non-Bessemer, 51½ per cent iron.....	4.75

Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore

Iron ore, low phos., copper free, 55 to 58 per cent iron in dry Spanish or Algerian.....	9.00c. to 9.50c.
Iron ore, Swedish, average 66 per cent iron.....	9.50c.
Manganese ore, washed, 51 per cent manganese, from the Caucasus, nominal.....	42c.
Manganese ore, ordinary, 48 per cent manganese, from the Caucasus.....	40c.
Manganese ore, Brazilian or Indian, nominal Tungsten ore, high grade, per unit, in 60 per cent concentrates.....	42c.
Chrome ore, basic, 48 per cent Cr ₂ O ₃ , crude, per ton, c.i.f. Atlantic seaboard.....	\$8.00 to \$8.50
Molybdenum ore, 85 per cent concentrates, per lb. of MoS ₂ , New York.....	18.50 to 24.00
	80c.

Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, or seaboard, per ton.....	\$90.00 to \$100.00
Ferromanganese, foreign, 80 per cent, f.o.b. Atlantic port, duty paid.....	92.50 to 95.00
Ferrosilicon, 50 per cent, delivered.....	72.00 to 75.00
Ferrosilicon, 75 per cent.....	140.00
Ferrotungsten, per lb. contained metal.....	87c. to 90c.
Ferrochromium, 4 to 6 per cent carbon, 60 to 70 per cent Cr. per lb. contained Cr. delivered.....	10.75c.
Ferrochromium, 6 to 7 per cent carbon, 60 to 70 per cent Cr., per lb.....	10.50c.
Ferrovanadium, per lb. contained vanadium.....	\$3.50 to \$4.00
Ferrocobaltititanium, 15 to 18 per cent, per net ton.....	200.00

Spiegeleisen, Bessemer Ferrosilicon and Silvery Iron

(Per gross ton furnace unless otherwise stated.)

Spiegeleisen, domestic, 19 to 21 per cent.....	\$31.00 to \$33.00
Spiegeleisen, domestic, 16 to 19 per cent.....	30.00 to 32.00
Ferrosilicon, Bessemer, 10 per cent, \$39.50; 11 per cent, \$42; 12 per cent, \$44.50; 14 to 16 per cent (electric furnace), \$36.00.	
Silvery iron, 5 per cent, \$27.00; 6 per cent, \$28.00; 7 per cent, \$29.00; 8 per cent, \$30.50; 9 per cent, \$32.50; 10 per cent, \$34.50; 11 per cent, \$37.00; 12 per cent, \$39.50.	

Fluxes and Refractories

Fluorspar, 80 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines.....	\$18.00 to \$19.00
Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines.....	19.00 to 20.00
Per 1000 f.o.b. works:	
Fire Clay:	
Pennsylvania.....	High Duty \$40.00 to \$43.00 Moderate Duty \$36.00 to \$40.00
Maryland.....	45.00 to 47.00 40.00 to 42.00
Ohio.....	40.00 to 43.00 37.00 to 39.00
Kentucky.....	42.00 to 43.00 37.00 to 39.00
Illinois.....	— 37.00 to 42.00
Missouri.....	42.00 to 45.00 35.00 to 40.00
Ground fire clay, per net ton.....	6.00 to 7.00
Silica Brick:	
Pennsylvania.....	25.00
Chicago.....	44.00 to 45.00
Birmingham.....	50.00
Ground silica clay, per net ton.....	7.50 to 8.00
Magnesite Brick:	
Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.).....	65.00
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.).....	40.00
Chrome Brick:	
Standard size, per net ton.....	45.00

Wire Products

Under the new selling plan of the American Steel & Wire Co., fully explained elsewhere in this issue, five separate basing points are provided, at Pittsburgh, Cleveland, Chicago, Birmingham and Worcester. The new prices thus far announced at Pittsburgh and Cleveland are as follows:

Nails, base, per keg.....	\$2.75
Bright plain wire, base, No. 9 gage, per 100 lb.....	2.50
Annealed fence wire, base, per 100 lb.....	2.65
Galvanized wire No. 9, base, per 100 lb.....	3.10
Galvanized barbed, base, per 100 lb.....	3.45
Galvanized staples, base, per keg.....	3.45
Painted barbed wire, base, per 100 lb.....	3.25
Polished staples, base, per keg.....	3.20
Cement coated nails, base, per count keg.....	2.15

Quotations on woven wire fence and bale ties have been reduced in line with the reduction of 5c. in plain wire.

In general, prices at Chicago district mills can be arrived at by adding 10c. to the above quotations, while prices delivered at Chicago are computed by adding 15c.

Semi-Finished Steel, F.O.B. Pittsburgh or Youngstown, per gross ton

Rolling billets, 4-in. and over.....	\$36.00 to \$37.50
Rolling billets, 2-in. and under.....	37.00 to 37.50
Forging billets, ordinary carbons.....	41.00 to 43.00
Sheet bars, Bessemer.....	37.00 to 38.00
Sheet bars, open hearth.....	37.00 to 38.00
Slabs.....	36.00 to 37.50
Wire rods, common soft, base, No. 5 to ¾-in.....	46.00
Wire rods, common soft, coarser than ¾-in....	\$2.50 over base
Wire rods, screw stock.....	\$5.00 per ton over base
Wire rods, carbon 0.20 to 0.40.....	3.00 per ton over base
Wire rods, carbon 0.41 to 0.55.....	5.00 per ton over base
Wire rods, carbon 0.56 to 0.75.....	7.50 per ton over base
Wire rods, carbon over 0.75.....	10.00 per ton over base
Wire rods, acid.....	15.00 per ton over base
Skelp, grooved, per lb.....	2c.
Skelp, sheared, per lb.....	3c.
Skelp, universal, per lb.....	3c.

Finished Iron and Steel, F.O.B. Mill

Rails, heavy, per gross ton.....	\$43.00
Rails, light, new steel, base, lb.....	1.85c. to 1.90c.
Rails, light, rail steel, base, per lb.....	1.65c. to 1.75c.
Bars, common iron, base, per lb., Chicago mill.....	2.15c.
Bars, common iron, Pittsburgh mill.....	2.40c.
Bars, rail steel reinforcing, base, per lb.....	2.10c. to 2.15c.
Rail steel bars, base, per lb., Chicago mill....	2c.
Cold-finished steel bars, base, Chicago, per lb.....	2.70c.
Ground shafting, base, per lb.....	3.20c.
Cut nails, base, per keg.....	\$2.90

Alloy Steel

S. A. E. Series Numbers	Bars 100 lb.
2100* (½% Nickel, 10 to 20 per cent Carbon)...	\$2.00 to \$2.25
2300 (¾% Nickel).....	4.75
2500 (5% Nickel).....	6.00 to 6.50
3100 (Nickel Chromium).....	3.65 to 3.75
3200 (Nickel Chromium).....	5.50 to 5.75
3300 (Nickel Chromium).....	7.25 to 8.00
3400 (Nickel Chromium).....	6.50 to 7.00
5100 (Chromium Steel).....	3.50 to 3.75
5200* (Chromium Steel).....	7.50 to 8.00
6100 (Chromium Vanadium bars).....	4.50
6100 (Chromium Vanadium spring steel).....	4.25 to 4.50
9250 (Silicon Manganese spring steel).....	3.50 to 3.75
Carbon Vanadium (0.45 to 0.55 Carbon, 0.15 Vanadium).....	4c.
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium).....	4.25 to 4.50
Chromium Molybdenum bars (0.80—1.10 Chromium, 0.25—0.40 Molybdenum).....	4.25 to 4.50
Chromium Molybdenum bars (0.50—0.70 Chromium, 0.15—0.25 Molybdenum).....	3.75 to 4.25
Chromium Molybdenum spring steel (1—1.25 Chromium, 0.30—0.50 Molybdenum).....	4.75 to 5.00

Above prices are for hot-rolled steel bars, forging quality, per 100 lb., f.o.b. Pittsburgh. For billets 4 x 4 to 10 x 10-in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4-in. down to and including 2½-in. squares, the price is \$5 a gross ton above the 4 x 4 billet price.

*Not S.A.E. specifications, but numbered by manufacturers to conform to S.A.E. system.

NON-FERROUS METALS

The Week's Prices

Cents per Pound for Early Delivery

Sept.	Copper, New York		Straits Tin (Spot)	Lead		Zinc	
	Lake	Electro- lytic*		New York	St. Louis	New York	St. Louis
17.....	13.25	12.87½	47.75	8.10	7.85	6.55	6.20
18.....	13.25	12.75	47.62½	8.10	7.85	6.52½	6.17½
19.....	13.25	12.75	47.12½	8.10	7.85	6.50	6.15
20.....	13.25	12.75	8.10	7.85	6.47½	6.12½
22.....	13.25	12.75	45.50	8.10	7.85	6.47½	6.12½
23.....	13.25	12.75	46.37½	8.10	7.85	6.47½	6.12½

*Refinery quotation; delivered price ¼c. higher.

New York

NEW YORK, Sept. 23.

The metal markets have all been more or less affected by the weakness in the London tin market. Copper and zinc are weaker and tin has shown a slight decline as compared with a week ago. Business is dull in all lines.

Copper.—There is very little business, and prices have weakened. While some producers are holding for 13.12½c. per lb., delivered, there is plenty of electrolytic copper to be had at 13c., delivered. Consumers covered their requirements fairly well in August, and business has not expanded sufficiently this month in consuming lines to warrant further purchases. The opinion prevails among sellers that October will be a better month. Export demand in its dullness is on a par with domestic business. Exporters have offered 12.85c. and 12.90c., f.a.s., for October-November shipment.

Tin.—Another quiet week in the tin market has been marked nevertheless by fluctuations in prices, with marked weakness at London on one or two days. The total business done here in the past week probably was not over 700 or 800 tons, which was about the same amount as was sold in the preceding week. At all times there was more anxiety to sell than to buy, this being due largely to overanticipation by London dealers as to the volume of the demand which would develop here this month. With demand less than was expected, there was some anxiety to dump surplus holdings. Most of the business done last week was for fairly nearby delivery, showing that consumers are not covered far ahead. Nor are they showing any desire to cover beyond their immediate requirements. London prices today were £227 15s. for spot standard, £229 10s. for future standard, £228 15s. for spot Straits and £225 5s., Singapore.

Lead.—While the American Smelting & Refining Co. continues to quote 8c., New York, the outside market is being held at 8.10c. or 7.85c., St. Louis. The St. Louis price has shown some easing in the past week. Demand is light.

Old Metals.—The market is unsettled. Buyers want bargains, while holders generally are unwilling to sell at the prevailing market. Dealers' selling prices are as follows in cents per lb.:

Copper, heavy and crucible	12.75
Copper, heavy and wire	12.00
Copper, light and bottoms	11.00
Heavy machine composition	10.25
Brass, heavy	8.25
Brass, light	6.75
No. 1 red brass or composition turnings..	9.00
No. 1 yellow rod brass turnings	8.00
Lead, heavy	7.37
Lead, tea	6.25
Zinc	4.25
Cast aluminum	17.50
Sheet aluminum	17.50

Zinc.—The zinc market has not maintained its strength of a week ago. On Sept. 16 we quoted 6.25c., St. Louis, but this price has dropped about one-eighth in the week, now being 6.12½c., at which only a moderate volume of business has been done.

Nickel.—Shot and ingot nickel are offered at 27c. to 28c. per lb., with electrolytic nickel held at 31c. to 32c. per lb. by leading producers.

Antimony.—The market continues dull, with prices

ranging from 11c. to 11.50c. per lb, duty paid, New York.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted at 27c. to 28c. per lb., duty paid, delivered.

Chicago

SEPT. 23.—Tin and lead have declined while zinc has advanced. The sharp drop in tin is attributed to speculation in London. Although considerable lead has changed hands prices have grown easier. Demand for copper has been erratic, but sentiment is slightly stronger than a week ago. Zinc is quiet but steady at the present price. Antimony is dull but firm owing to continued strife in China. Among the old metals, grades of copper, lead and tin have declined. We quote in carload lots: Lake copper, 13.75c.; tin, 47c.; lead, 7.90c.; spelter, 6.25c.; antimony, 12.50c., in less than carload lots. On old metals we quote copper wire, crucible shapes and copper clips, 10.25c.; copper bottoms, 9c.; red brass, 8.25c.; yellow brass, 7c.; lead pipe, 6.75c.; zinc, 4c.; pewter, No. 1, 24c.; tin foil, 30c.; block tin, 38c., all buying prices for less than carload lots.

Better Refractories Business

Betterment in refractories business, which started in July, continued last month, according to the monthly report of the Refractories Manufacturers' Association, which shows that August shipments of clay fire brick were more than 3,000,000 9-in. straights greater than those in July and that silica brick shipments last month were greater by over 500,000 9-in. straights than those of the month before. New business in both kinds gained. The situation as to stocks was better in silica brick at the end of August as compared with a month before, but "free" stocks of clay fire brick gained more than 1,000,000 9-in. straights last month.

Figures in 9-in. straights for August compare with those for July, figures in parentheses being the percentages to monthly economical producing capacity of those reporting, as follows:

	Clay Fire Brick	
	August	July
Capacity reporting	51,948,967	50,693,967
Stocks first of month....	151,230,634 (290)	146,507,019 (289)
Production	31,508,420 (60)	29,137,095 (57)
Shipments	31,723,597 (61)	28,693,426 (57)
Stock end of month.....	151,015,457 (290)	146,950,688 (289)
New orders	31,481,802 (60)	29,428,844 (58)
Cancellations	750,255 (1)	426,057 (1)
Net new business.....	30,731,547 (59)	29,002,787 (57)
Unfilled orders.....	41,128,726 (79)	41,787,145 (82)
	Silica Brick	
	August	July
Capacity reporting	8,019,667	8,019,667
Stock first of month....	12,389,600 (154)	12,731,715 (158)
Production	3,623,046 (45)	3,393,791 (42)
Shipments	4,278,450 (53)	3,735,906 (46)
Stock end of month.....	11,734,196 (146)	12,389,600 (154)
New orders	3,100,739 (38)	2,594,908 (32)
Cancellations	111,721 (1)	44,778 (1)
Net new business.....	2,989,018 (37)	2,550,130 (31)
Unfilled orders.....	4,144,445 (51)	5,443,857 (67)
"Free" stocks		
Clay fire brick	64,205,596	63,081,195
Silica brick	2,954,522	4,580,890

Merger of Western Engine Builders

It has been announced that the Enterprise Engine Co., San Francisco and the Western Machinery Co., Los Angeles, Cal., have consolidated interests, thus bringing together two of the largest builders of internal combustion engines on the Pacific Coast. The merger creates an organization with a wide range of facilities in engineering, manufacturing and distribution. No change of policy is expected by reason of the merger. Headquarters of the combined companies will be at Los Angeles. Operations of the Enterprise company will continue with W. J. Donlon in charge of all Diesel engine business, which will be directed from the plant at Eighteenth and Alabama Streets, San Francisco.

The Marion Coke works have resumed operations at the plant at Cheathaven, Pa., firing a battery of 60 ovens, idle for several months past. Employment will be given to operatives on a full 6-day week basis.

PERSONAL

W. Herman Greul, consultant in business administration, has opened a New York office at 342 Madison Avenue, specializing in the analysis of business operations, administrative control methods, surveys and training of statistical departments.

A. P. Thourkauf has been appointed chief engineer of the British Empire Steel Corporation's plant at Sydney, N. S., and subsidiaries at New Glasgow, N. S., and North Sydney, N. S., to succeed George D. McDougal, recently resigned. Vice-president J. E. McLurg has announced that three or four mine managers will be sent on an educational trip through the coal industries of the United States.

George D. Branstion has been appointed manager of sales of railroad materials for the Jones & Laughlin Steel Corporation, Pittsburgh. This division of sales has been segregated from the cold rolled steel department. Mr. Branstion recently resigned as secretary-treasurer of Manning, Maxwell & Moore, Inc., New York, and previously was with Joseph T. Ryerson & Son, Inc. He will be assisted by F. F. Vowinkel.

A. R. Marshall has been appointed purchasing agent of the Allen S. Davison Co., Oliver Building, Pittsburgh, owner and operator of the Basic Products Co. and the Sharpsville Furnace Co.

J. C. Shepard and J. W. Anderson have been appointed assistant general sales managers of the Sheffield Steel Mills, Kansas City, Mo.

E. W. Cooney, a director of the National Forge & Tool Co., Irvine, Pa., has been appointed to the presidency of the American Forge & Tool Co., Anderson, Ind., effective Oct. 1. Besides his above connection, Mr. Cooney is president of the Warren County Good Roads Association and postmaster at Irvine.

OBITUARY

HENRY G. MASSEY, Chicago district sales manager of the Seneca Iron & Steel Co., Buffalo, with which he had been associated for 14 years, died suddenly at Kalamazoo, Mich., on Sept. 8, of heart failure. Mr. Massey was born 38 years ago and was long connected with the company's New York office.

GEORGE T. LEWIS, president and founder of the Penn Iron & Steel Co., Creighton, Pa., died at the West Penn Hospital in Pittsburgh, Sept. 17. He was born in Sharpsburg, Pa., 75 years ago and had been active in the iron and steel industry for about 60 years, as he was only 15 years old when he went to work in the plant of the Lewis-Dalzell Iron Co., of which his father was head. For more than 20 years he was vice-president and general manager of the Carter Iron Works, Hayes, Pa., which was absorbed about 10 years ago by the Monongahela Iron & Steel Co. For a brief period thereafter he was with the Burden Iron Works, Troy, N. Y., as general superintendent. He returned to Pittsburgh in 1917 and organized the company of which he was head at the time of his death. Mr. Lewis's father, George Lewis, was known as the "Welshman who rolled the first bar of iron in America."

ABRAM HECHT BALLINGER, president American Foundry & Machine Co., Hamilton, Ohio, died Sept. 19, following an illness of several months. Mr. Ballinger's partner and brother-in-law, Aaron Jacobs, died three weeks ago. Mr. Ballinger was born in Cincinnati in 1861. He moved to Hamilton several years ago and established the company of which he was president. He was well known there as a manufacturer, philanthropist and designer of parks, having been a member of the Board of Park Commissioners of Hamilton for several years.

B. N. Broido, who has been doing special consulting work for the Superheater Co., of New York and Chicago, has been appointed chief engineer of the industrial department of the company.

Sam G. Cornsweet has severed his connection with the Velick Scrap Iron & Machinery Co., Detroit, and has affiliated himself with the Cornsweet Iron Co., dealer in scrap iron, 605 Society for Savings Building, Cleveland.

Caulton C. Marrin, for the past six years connected with the export department of Viele, Blackwell & Buck, 49 Wall Street, New York, and prior to that in charge of the export department of Butler Brothers, Jersey City, N. J., is in charge of iron and steel purchasing with Arkell & Douglas, Inc., 73 Pearl Street, New York.

Joseph F. Pflum, who has been manager of the Cincinnati branch of the Heald Machine Co., Worcester, Mass., for several years, will now also have charge of the Cleveland territory, with headquarters in the Cleveland Discount Building, Room 614, Cleveland. R. A. St. John also will be located in Cleveland and will assist Mr. Pflum in sales and service work.

Dr. Edward Schmidt of the Skoda Workes, Prague, Czechoslovakia, is spending several months in the United States, visiting various steel works and research laboratories. He reached this country three weeks ago.

Karl S. Harbaugh, for several years Seattle representative of the United States Steel Products Co., has been lying seriously ill in a hospital in that city for about a month. His condition for the past week has shown no improvement.

John D. Maurer, assistant general superintendent of the Bay View plant, Illinois Steel Co., Milwaukee, has been appointed general superintendent to succeed Richard B. Charlton, deceased. Mr. Maurer has been assistant general superintendent since March, 1920, and prior to that was for several years chief engineer.

JOHN M. STEWART, for the past ten years assistant chief of the bridge shop, Bethlehem Steel Co., Bethlehem, Pa., died at the Sacred Heart Hospital, Allentown, Pa., Sept. 6. He was born in Baltimore in 1875 and until a year ago had resided in Easton, Pa.

Slight Decrease in Mill Activities in Youngstown District

YOUNGSTOWN, Sept. 23.—Iron and steel producers in the Mahoning Valley are making strenuous efforts to uphold the production rate of recent weeks, but a moderate recession in rolling mill schedules is noted this week, as compared with the 75 per cent average recently sustained.

Iron output shows an increase with two additional blast furnaces of the Carnegie Steel Co., in the Ohio Works group, in action.

Steel ingot production shows a loss of three open-hearth furnaces, while 75 of 120 sheet and jobbing mills started the week, as compared with 80 last week. Tube mill schedules show a loss of one active unit. The Youngstown Sheet & Tube Co. is operating two bar mills, its 9-in. and 12-in. units.

The cut in open-hearth furnace operations is due to the loss of three units at the plant of the Republic Iron & Steel Co., which is operating nine furnaces this week, against 12 last. It is likewise maintaining in action two light bar mills, as compared with four or five previously.

Strip mill production with the Trumbull Steel Co. and the Sharon Steel Hoop Co. is close to a normal basis.

Divided between its Union and McDonald plants, the Carnegie company is operating 17 bar mills.

The American Sheet & Tin Plate Co. is operating eight of 12 sheet mills at its Mercer, Pa., works, and 60 of 90 tin mills in its three plants in the Shenango Valley.

European Markets Still Unsettled

Germany Still Shutting Down Works, but Shows Improvement in Ruhr—Britain Has Some Better Spots—
France and Belgium Hit by Competition

(By Cable)

LONDON, ENGLAND, Sept. 23.

PIG IRON is showing a steadier tendency on increasing home demand, but export sales still are poor and stocks still abundant. There is some revival of Continental inquiry but in few cases do orders materialize. Production rate is unchanged, but a further limitation in the number of furnaces active is probable. Hematite is slow. Stocks are large but demand is poor.

Foreign ore is in better demand, but prices still are above buyers' ideas. Bilbao Rubio is being sold at 21s. 6d. (\$4.80) c.i.f. Tees, and Bilbao spathic is quoted at 17s. 6d. (\$3.90) c.i.f. Tees.

Finished steel is dull. There have been some moderate inquiries for plates and sections from Continental users, but little business.

Orders for six 10,000-ton oil tankers have been placed by the Anglo-Saxon Petroleum Co. with Dutch shipbuilders, but British steel rollers are supplying most of the plates and sections. Thomas W. Ward, Ltd., is supplying the steel work for a new smithy stamp shop for the Cravens Railway Carriage & Wagon Co., Ltd., at Sheffield. The Buenos Aires Great Southern Railroad has placed orders with British makers for 55 locomotives.

Sheets and Tin Plate

Tin plate inquiry is improving and fair business is being done at 23s. 6d. (\$5.24) basis IC, f.o.b. The Far East still is an active buyer of light 20 x 14's. Wales has secured a small Canadian order.

Galvanized sheets are quiet but steady. Makers are well sold up.

Black sheets are quiet. Some makers are sold out

on Japanese thin specifications to the end of the year. Others are full to December.

On the Continent of Europe

Continental position is complex, with little business, owing to uncertainty in prices. Sheet bars have been sold at £5 10s. (\$24.53) f.o.b. and billets have been done at £5 7s. 6d. (\$23.97) f.o.b. Most works are in want of orders, but disinclined to reduce prices.

In the Saar district the Rochlingsche Eisen und Stahlwerke has closed the plants at Volklingen, entailing the discharge of 7000 workers. There is a slight revival of the German home market and the competitive power of the Ruhr works has been increased by abandonment of the French restrictions.

French and Belgian works have a less satisfactory outlook and apprehend further curtailment in output, failing an early business improvement.

British Market Exceedingly Pessimistic— Looks for Governmental Assistance

LONDON, ENGLAND, Sept. 4.—The position of the iron and steel markets is still without the least sign of improvement, which may be attributed in part to the continued apathy on the part of buyers, both at home and abroad. The whole question seems to be one of prices, or rather stability in prices, and until there is some sign of the latter being reached, increased sales can hardly be looked for. The production of both pig iron and steel is at a low rate, so much so that plants are closing down as they reach the end of their rolling program, the latest to do so being the Barrow Steel Works, which concentrates chiefly on rails.

British and Continental prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.46 per £1, as follows:

Durham coke, del'd..	£1 6s.	\$5.80
Bilbao Rubio ore†...	1 4	5.35
Cleveland No. 1 fdy...	4 7½	19.51
Cleveland No. 3 fdy...	4 2	18.29 to £18.40
Cleveland No. 4 fdy...	4 1	18.09
Cleveland No. 4 forge	4 0	17.84
Cleveland basic	4 2½	18.40
East Coast mixed.....	4 11	20.29
East Coast hematite..	4 19	22.08 to 22.30
(a) Ferromanganese...	13 10 and 13 0*	60.21 and 57.98*
Rails, 60 lb. and up...	8 5	36.80 to 40.14
Billets	7 10	33.45 to 36.80
Sheet and tin plate		
bars, Welsh	8 12½	38.47
Tin plates, base box..	1 3½	5.24
C. per Lb.		
Ship plates	9 5	1.84 to 1.94
Boiler plates	13 0	2.59 to 2.69
Tees	9 7½	1.87 to 1.97
Channels	8 12½	1.72 to 1.82
Beams	8 7½	1.67 to 1.77
Round bars, ¾ to 3 in.	9 12½	1.92 to 2.02
Galv. sheets, 24 gage	18 5	3.63 to 3.68
Black sheets, 24 gage	13 0	2.59 to 2.64
Black sheets, Japanese		
specifications	15 5	3.04
Steel hoops	10 15 and 12 10*	2.14 and 2.49*
Cold rolled steel strip,		
20 gage	17 0	3.39

*Export price.

†Ex-ship, Tees, nominal.

(a) Nominal.

Continental Prices, All F. O. B. Channel Ports

(Nominal)

Foundry pig iron:				
Belgium	£3 18s.	to £4 0s.	\$17.39	to \$17.84
France	3 18	to 4 0	17.39	to 17.84
Luxemburg	3 18	to 4 0	17.39	to 17.84
Billets:				
Belgium	5 7½		23.97	
France	5 7½		23.97	
Merchant bars:				
			C. per Lb.	
Belgium	5 17½	to 6 5	1.17	to 1.24
Luxemburg	5 17½	to 6 5	1.17	to 1.24
France	5 17½	to 6 5	1.17	to 1.24
Joists (beams):				
Belgium	5 15	to 6 0	1.15	to 1.19
Luxemburg	5 15	to 6 0	1.15	to 1.19
France	5 15	to 6 0	1.15	to 1.19
Angles:				
Belgium	8 0	to 8 5	1.59	to 1.64
½-in. plates:				
Belgium	7 0	to 7 10	1.39	to 1.49
Germany	7 0	to 7 10	1.39	to 1.49
¾-in. plates:				
Luxemburg	7 0	to 7 10	1.39	to 1.49
Belgium	7 0	to 7 10	1.39	to 1.49

Pig iron blast furnaces have been damped; Cleveland now has only 44 blowing, while only 25 are active in Scotland. Prices keep tumbling down, Cleveland No. 3 G. M. B. being now 83s. (\$18.59 at \$4.48 per £) and East Coast hematite at 91s. (\$20.39), but stocks are still accumulating, thereby showing the disinterested attitude of users. Continental reports also talk of inactivity, but the position there seems to rest now upon the vagaries of the exchange rates.

How long things will continue as they are one cannot tell, but undoubtedly something will have to be done to help the iron and steel industry of this country. To this end a committee has been formed to deal with applications received, under the Trade Facilities Act, for the granting of financial help toward carrying out certain public projects and, if they materialize, iron and steel makers should get some benefit. There is also talk in political circles of a tariff being placed on iron and steel imports, in view of the feared extensive com-

petition from Germany and the Continent generally, when Germany is going again.

There are exceptions, however, to the dullness of trade and these are the sheet departments, both black and galvanized, and to a lesser extent the tin plate market. Sheet rollers have, during the last few months, obtained a number of good orders, and others still are coming in, so that the works are exceedingly busy and likely to be so for some time. Japan and India have been by far the most active buyers in this respect, but other colonies also have bought well, particularly of galvanized sheets.

Two Scottish works, James Howden & Co., Ltd., Govan, Glasgow, and Muirlees Watson, have received orders, totaling between them £100,000, in connection with the electrification of the Cape Town Suburban Railroad. Manchester council has just placed an order with American mills for £8,375 worth of steel tramway rails.

GERMAN MARKET HOPEFUL

Slow but Steady Progress in Trade Revival—Costs and Prices Considered—Iron and Steel Stable

BERLIN, GERMANY, Sept. 11.—The trade revival which began immediately after the Reparations agreement in London has so far progressed slowly; only in some branches of textiles does any great activity prevail. The number of publicly supported unemployed increased between Aug. 1 and 15 from 328,111 to 355,848, and then seems to have reached its highest point. Conditions in steel and iron are slightly better than they were a month ago, but the expected great revival delays.

Inquiries made by our correspondent among leading steel men brought the reply that no general boom can be expected until after the Reparations loan is subscribed, and it is not certain even then. This loan is necessary for the completion of the Reparations agreement and it will be an indicator of international sentiment in the question of granting credits to Germany generally. Without foreign credits, steel men agree, a production boom is impossible even if orders are abundant. Working capital for the financing of a revival cannot be had at home. This reasoning agrees with the experience of last summer, when concerns which were booked full up with orders had to reduce output and discharge men, owing to lack of money. In these conditions the report of an impending American \$10,000,000 credit to Ruhr industry has caused great excitement.

Germany as a Future Exporter

Foreign credits will undoubtedly foster German competition in the iron, steel and engineering branches. English apprehensions on this score are, however, exaggerated. A leading member of the Stinnes concern declares that Germany will reappear in the international market as a great iron exporter only after an agreement for cooperation between the Ruhr and Alsace-Lorraine is concluded, and only if the cooperation provided for is so close that it practically reproduces pre-war conditions, when Lorraine ore and Ruhr coal were a single interest. The Stinnes, Thyssen, Wolff and other leading interests stand for such close cooperation.

But they know that this hope cannot be realized until Franco-German commercial relations are regulated by treaty, that is, until Germany recovers her tariff independence in January, 1925. Even then obstacles will remain. The customs barrier existing between the two countries could be overcome in the interests of Ruhr-Lorraine cooperation only by means of special legislation. It is hardly likely that the closest Franco-German union would prove as efficient in competition as was Germany alone when she owned both coal fields and ore fields.

Freight Rate Reduction and Costs

For the present, German efforts are concentrated on cutting down production costs in order to undersell

France and Belgium. The Government has decided to reduce railroad freight rates, which were last reduced 10 per cent in March. The new cut will be 10 to 15 per cent; and in connection therewith coal prices, which were last cut 20 per cent on July 1, will be again reduced. For weeks past a powerful agitation to compel a reduction of railroad rates has been under way. The main argument was that since 1913 railroad rates have risen more than commodity prices, and in particular more than railroad operating costs.

Last July railroad freight rates for seven leading commodities averaged 69 per cent more than in 1913, whereas average prices of the same seven commodities had risen only 57 per cent. As regards operating costs, wages have risen only 8.3 per cent, coal 38 per cent, bar iron 12 per cent, oil 24 per cent; thus the 69 per cent increase in rates seems excessive. The expected cut in coal prices, and in carriage rates for heavy iron, machinery, etc., will prove a powerful stimulus to export. At present French and Belgian railroad rates, owing to the franc depreciation, are much below those of before the war.

Wages and Costs of Living

Wages in the iron and steel branches move slowly upward, but they still are extraordinarily low. The average weekly wage in 20 centers (including all the Ruhr cities) is for skilled steel workers 30.72 gold marks (\$7.30) per week, where the old 8-hr. day still is adhered to; or 34.91 gold marks (\$8.30) where longer hours are worked, as is now the rule. For unskilled workers the respective weekly wages are 22.56 gold marks (\$5.40) and 25.88 gold marks (\$6.15).

These four rates are, respectively, 84.9, 96.4, 92.3 and 105.9 per cent of the nominal pre-war wages; but owing to the rise in gold cost of living since 1913, the real wage compares still less favorably, being for skilled workers who work 8-hr. only, 73.5 per cent of the pre-war, and for unskilled workers 80 per cent. As the per capita productivity of workmen has of late risen, it is impossible to believe present complaints that Germany cannot compete in the price question.

Activity in Various Lines

Prices have remained practically stable since the slight increase registered in August. The Pig Iron Syndicate has decided not to change its prices. Ingots, blooms, slabs and bars are most in demand. The demand for sheets, which lately showed signs of increasing, has again fallen off. The Iron Founders' Association states that an improvement in its branch may be expected in connection with the international settlement. The present home demand for castings is very small.

In the machine tool branch there has been a sudden increase in activity. Many new foreign orders have come in. Spain and Italy have been buying. Improvement in the Solingen fine steel industry continues. Railroad car construction concerns have not yet had the usual fall orders from the state; but officially it is reported that the railroads soon will need an enormous

quantity of new rolling stock. The Otto Wolff syndicate has a large order for steel rails for the Belgrade-Agram railroad in Jugo-Slavia. This is a Reparations order, and the value is 80,000,000 dinars. The order was negotiated in 1922 before the French occupation of the Ruhr.

Foreign trade in July showed, for the first time this

year, a surplus of exports over imports. Imports were 556,244,000 gold marks against 753,121,000 marks in June; exports 573,362,000 marks against 475,248,000 marks. Exports of iron and steel and goods (scrap iron and machinery excluded) were 90,416 metric tons against 84,409 tons in June; exports of machinery, 25,442 tons against 20,374 tons.

BELGIAN PRICES LOWER

Concessions Forced by Competition—Business Very Sparse—Profits Disappearing

ANTWERP, BELGIUM, Sept. 3.—Prices in general have undergone another reduction and the market shows a more decided weakness. Quotations expressed in sterling and in francs are lower for most commodities. Only a few orders are placed, while definite demand from abroad is absent. Makers book only sufficient orders to keep their works operating.

Strong International Competition

Steel prices particularly are weak. Makers get some orders only by further concessions in prices. No country is buying except the Indies and some countries of South America, from which some small orders have been booked. Bars and joists are quoted for export as low as £5 17s. 6d., i.e., \$26.50 (Belgium fr. 520 to 525). Strong competition, with nearly the same prices, appeared from Luxemburg makers.

Thin sheets also have been reduced slightly in price, while heavy material has suffered largely, on account of continuing strong German competition. Prices quoted by the latter country are as low as £7, or for less important specifications, £7 2s. 6d., i.e., not more than fr. 620 or \$31.50, f.o.b. (1.43c. per lb.). Against this the Belgian makers maintain their lowest export quotation at fr. 630 (\$32, or 1.45c. per lb.) and in most cases to fr. 650 (\$33, or 1.50c. per lb.).

As regards semi-finished products, no Belgian market now exists. With prices proposed by foreign buyers (as previously said, mostly English) makers prefer to abstain and consider business to be impossible. Orders for billets could be booked only at prices such as £5 7s. 6d. (\$24), while prices by makers here would have to be at the minimum fr. 495 to 500, i.e., \$25, in both cases f.o.b. steamer at Antwerp.

Iron prices are lower; business remains scarce.

Prices in this country are quoted approximately as follows:

	Fr.	Per Lb
Bars, basis price.....	530 or	\$26.80 or 1.32c.
Joists and U-iron.....	525 or	26.50 or 1.20c.
Rods.....	640 or	32.10 or 1.46c.
Corrugated bars.....	650 or	32.55 or 1.48c.
Hoops.....	800 or	40.40 or 1.83c.
Cold rolled steel hoops.....	1,100 or	55.50 or 2.52c.
Drawn steel, squares.....	1,080 or	54.45 or 2.47c.
Drawn steel, rounds.....	1,050 or	53.00 or 2.40c.
Drawn steel, hexagons.....	1,175 or	59.40 or 2.69c.
Rails.....	725 or	36.50 or 1.66c.
Spring steel, best quality.....	1,000 or	50.50 or 2.29c.
Commercial iron, No. 2.....	600 or	29.00 or 1.32c.
Commercial iron, No. 3.....	625 or	31.65 or 1.44c.
Commercial iron, No. 4.....	650 or	32.55 or 1.48c.
Thomas sheets 0.5 mm. (No. 25½ gage).....	1,200 or	61.00 or 2.77c.
Thomas sheets 1 mm. (No. 19½ gage).....	1,050 or	53.00 or 2.40c.
Thomas sheets 2 mm. (No. 14 gage).....	780 or	39.00 or 1.79c.
Thomas sheets 3 mm. (No. 11½ gage).....	700 or	35.20 or 1.60c.
Thomas sheets 5 mm. (No. 6½ gage).....	640 or	32.10 or 1.46c.
Galvanized sheets 0.5 mm.....	2,175 or	110.00 or 4.99c.
Galvanized sheets 1 mm.....	1,700 or	86.00 or 3.90c.
Polished sheets, average price.....	1,500 or	75.80 or 3.44c.
Steel bands.....	740 or	37.40 or 1.70c.
Wires, galvanized.....	1,200 or	61.00 or 2.77c.
Wires, barbed.....	1,350 or	68.40 or 3.10c.
Wires, plain.....	950 or	48.00 or 2.18c.
Wires, annealed.....	1,000 or	50.50 or 2.29c.
Wire nails.....	1,000 or	50.50 or 2.29c.
Wire rods.....	620 or	31.40.....
Billets, soft Thomas steel.....	500 or	25.40.....
Blooms.....	460 or	23.20.....
Largets.....	525 or	26.50.....

Foundry iron, phosphoric quality, No. 3 (silicon 2.5 to 3 per cent) is quoted at fr. 350 f.o.b. Antwerp, in some cases even lower. This price equals \$17.60 today. The same price is practicable here, but nearly no business is done. Makers, on one side, no longer are disposed to accept lower prices than their actual costs, while founders, considering the weakness of the pig

iron market as well as the weakness of coke prices, expect further reductions.

Semi-phosphorus pig iron (i.e., with phosphorus under 1 per cent) is quoted at fr. 380 per metric ton f.o.b. Antwerp, or \$18.60. It seems, however, that Germans, for the foreign markets, as the Pacific, underquote this price. Luxemburg and Lorraine furnaces are in strong competition, with nearly the same prices for both qualities.

WAR CHECKS TRADE

Chinese Business Seriously Affected—Japan Inquires for Tin Plate—Some Inquiry for Rails

NEW YORK, Sept. 23.—Export trade continues quiet from most export markets. Chinese merchants evince but little interest in purchasing at present, as a result of the disorganization produced by the war conditions. Wire shorts, generally a fairly active product, are being offered by exporters at low prices but without awakening the interest of Chinese merchants. Galvanized shorts are quoted by manufacturers at as low as \$44 per ton, f.a.s. Atlantic port. Japanese inquiries and purchases are still confined to the large companies and municipalities. Merchant buying in Japan is still curtailed, at least partly as a result of the depreciated exchange. American export interests are quoting light gage black sheets at about \$95 per ton, c.i.f. Japan, which is too high to interest the average Japanese distributor. Exporters in close touch with the Japanese market point out that the obstacle of a depreciated exchange may be continued for some time as a result of the usual purchasing of cotton in the United States by the Japanese mills.

The outstanding current inquiry is probably that of the Nippon Oil Co. for 56,000 boxes of tin plate for delivery in the first quarter. Rail inquiries are not numerous at present. The Imperial Government Railways is still expected to come into the market before the end of this year for a sizable tonnage of rails. A current inquiry, on which all bids are in, is from the Japan Sugar Refining Co., Formosa, for 20 miles of 25-lb. rails in 30-ft. lengths. The Tokio Municipal Railway opened bids Sept. 18 on 35 manganese steel switches. A tin plate inquiry from an unnamed purchaser calls for 1000 boxes of 20 x 28 in. In view of the fact that the recent inquiry of the Aichi Electric Railway for 35 miles of 75-lb. rails went to a German mill at a price said to have been lower than the French bid of \$35 per ton, c.i.f. Japan, at least some of the present rail business is expected by exporters to go to European makers.

Trade with China will be disorganized for a considerable period, according to a cable to the Department of Commerce from Commercial Attaché Julean Arnold at Peking. "Practically the entire country is now involved since Sun Yat Sen in Canton is reported to have entered the war," says the cable. "This makes it inevitable that the trade of China will be completely disorganized for a very considerable period. The outlook for both exports and imports is most discouraging. The movement of Chinese products from the interior has practically stopped, and import merchants are faced with heavy cancellations. Little business of any kind can be done until hostilities cease."

The Wickwire-Spencer Steel Corporation, Worcester, Mass., is to move some 50 of its screen cloth looms to its Clinton, Mass., subsidiary plant. Nearly all the departments of the Clinton plant are busy, and some of them operating day and night.

Machine Tool Exhibition Diversified

(Continued from page 758)

shape, that may be depended upon to take a cut of a maximum depth, at a maximum rate of speed and feed. It may be, of course, that in working out the experiments we will find a better heat treatment or an improved shape to grind the tools, clearance angles, etc., and we will determine also the manner in which the tool should be clamped, the distance the cutting edge should be from the work and all of those factors that enter into the case."

It was stated that after the experiments on mild steel were carried out, other steels, cast iron and non-ferrous metals could be made subjects of research. It was felt that users of machine tools, many of whom themselves are making tests to determine facts which would be developed by this research, and manufacturers of machine tools, would profit from a research such as proposed, and would therefore be willing to provide funds for carrying it on.

At the same session B. H. Blood, Hartford, in discussing research in machine shop practice in the United States, emphasized the need for a definite program based on interchange of information, stressing also the need for funds for carrying on research in this field. Dr. Wilfred Lewis, Tabor Mfg. Co., Philadelphia, ex-

plained the construction and operation of his machine for testing the strength of the gear teeth.

Session Devoted to Standardization

At a session devoted largely to standardization problems, and presided over by Dr. G. K. Burgess, director Bureau of Standards, Washington, L. D. Burlingame, industrial superintendent Brown & Sharpe Mfg. Co., Providence, presented a paper on "Standardization versus Individuality." The conclusion reached from this discussion was that there is danger of overstandardization if we dive into it headlong, without due regard to established practice and to the cost and confusion of changing. It would seem, said Mr. Burlingame, that the more conservative practice of the British Engineering Standards Association might with advantage serve as a guide to us in America, rather than the wholesale standardization which has been in vogue in Germany since the war. Other speakers at this session included Col. E. C. Peck and G. T. Trundle, Jr., both of Cleveland.

D. M. Chason, Singer Mfg. Co., Elizabethport, N. J., presented a paper on "Comparative Methods of Tool Design and Relation to the Quantity Production of Sheet Metal Parts." H. Reynolds, Fafnir Bearing Co., New Britain, Conn., spoke on the subject of the application of ball bearings to machine tools. An evening session devoted to general discussion of education and training for the industries was well attended.

Recently Developed Machines and Shop Devices Shown

MUCH of the equipment represented recent improvements and several of the machines and shop devices were shown for the first time. A number of the new developments mentioned in the following outline of the exhibition have been referred to in recent issues of THE IRON AGE:

A new universal hollow hexagon turret lathe designated as the No. 1-A was exhibited by the Warner & Swasey Co., Cleveland. The machine has $2\frac{1}{2}$ x 26 in. bar capacity, 12 in. chuck capacity and $16\frac{1}{4}$ in. swing over the bed. All steel geared head is a new feature. Twelve spindle speeds, forward and reverse, are provided. To withstand increased feeding pressure required of the turret in the new machine, an outside split ring binding mechanism is provided for binding the saddle to its turret rigidly. The turret is equipped with 16 feed changes instead of 10. Gears are in the saddle and cross-slide aprons instead of in the feed box at the end of the machine as heretofore, and all gears run in oil. In the standard bar equipment provided the automatic chuck is equipped with a spring master collet and a complete set of collet bushings for round and hexagon stock. The power screw bar feed, provided in place of the roller feed, is operated in direct connection with the automatic chuck. The overhead piloted turning head is offered for the first time as a standard accessory. The screw chasing attachment, which is provided as an extra, has a long lead screw instead of a small leader and follower. The machine was demonstrated under power.

The New Britain Machine Co., New Britain, Conn., exhibited its No. 454 New-Matic work-rotating type chucking machine. Work is performed on four pieces simultaneously, and the time of the piece is that of the longest single operation. The machine was equipped with an overhead self-contained motor drive and also with the company's patented air chucking and unchucking device. It was on first operation work on forged ball bearing outer rings, which were 3 in. in diameter and of high-carbon chrome-bearing steel. The machining consisted of rough and finish turning part of the periphery of the ring; rough and finish boring; recessing for ball groove, and chamfering the outer corners. The production was at the rate of 25 sec. for each piece. More than 1400 pieces were said to have been completed at the exhibit without resetting or regrinding the cutting tools, which was emphasized as demonstrating that the machine is operated at conservative cutting speeds and tool advances. The company's $\frac{5}{8}$ x $3\frac{3}{4}$ in. six-spindle automatic screw machine with overhead motor drive was in operation on steel inserts. Reaming was done in both the fifth and sixth positions, the reamer in the sixth position being withdrawn before the cut-off tool started to work. The piece machined, which was $\frac{1}{2}$ in. in diameter, $1\frac{1}{4}$ in. long and had a two-diameter hole, was drilled, knurled, recessed and rough and finished reamed. It was of 10-20 steel, and production was at the rate of 120 pieces an hour.

The model C five-spindle $9/16$ -in. automatic screw machine of the National Acme Co., Cleveland, placed on the market within the year, was in operation. Two $4\frac{1}{2}$ -in. model H Gridley four-spindle chucking machines were also under power, machining high-carbon chrome nickel radial ball bearing forgings. One machine was on first operation, inside, and the second machine on second operation, outside, the piece being finished completely on the two machines. The production was 90 pieces an hour from each machine.

Internal Grinder a Center of Interest

The No. 72 direct motor-driven internal grinder of the Heald Machine Co., Worcester, which was equipped with an automatic sizing attachment, attracted attention. Three motors are employed, one each for the headstock, grinding-wheel spindle and for the oil and water pump. The machine was in operation on Timken inner races, the finished pieces being held to about $2/10$ of one thousandth of an inch, this being obtained automatically. An automatic device provides coarse feed for roughing and a light cut for finishing and without adjustment by the operator. Rapid production was a feature.

The No. 6 semi-automatic hole grinder of the Bryant Chucking Grinder Co., Springfield, Vt., was under power. Improved features include a sizing indicator. The workhead has been lengthened to provide a longer spindle and a ball bearing wheel head is now standard. The diamond truing device has been improved and also the arrangement for grinding tapers. The cross feed screw is made heavier than heretofore.

The Norton Co., Worcester, exhibited its 6 x 10 x 36 in. type G surface grinder equipped with magnetic chuck. It was in operation grinding steel bars and the fast table traverse, 80 ft. per min., was a feature emphasized. A new type of spindle bearing has been added. A high traverse grinding machine for use on work up to 2 in. in diameter, but accommodating also work up to 6 in. in diameter and 30 in. long, was shown by the Landis Tool Co., Waynesboro, Pa., the machine being in operation on motor shafts. A rotary, hydraulic motor provides power for traversing the work carriage, the speed of which may be varied from 6 in. to 40 ft. per min. by the manipulation of one valve. The use of a 24-in. diameter grinding wheel is said to increase the output of the machine and to permit a greater number of pieces per dressing of the wheel.

Bench Type Screw Thread Comparator

A bench type of Hartness screw thread comparator recently developed by the Jones & Lamson Machine Co., Springfield, Vt., was one of the items exhibited for the first time. The device is essentially the same as the standard Hartness comparator, but is smaller and more compact.

A new simplified contour projector for checking the contour of gear teeth, saw teeth, threads, etc., on a production basis was one of several new items shown by the Bausch & Lomb Optical Co., Rochester, N. Y. An optical setting device

for index heads and consisting of a graduated circle and microscope was also exhibited, this being claimed to eliminate error in work due to errors in index plates and lost motion in mechanism. A microscope for checking cutters, which with a special holder provided is said to permit truing up cutters with an accuracy otherwise unattainable was shown. A new optical setting device for use in linear spacing on milling machines was on view, as well as glass surface plates which were said to be accurate to one-three-hundred-thousandth ($1/300,000$) of an inch. Both surfaces are finished, and the plates were featured as not being susceptible to temperature changes. Quartz test plates with surfaces accurate to one-millionth of an inch were shown, these being for use in checking surface gages. A new thickness gage measuring accuracy up to one micron ($1/1000$ min.) was exhibited.

In addition to a large display of micrometers, gages, and ground taps, John Bath & Co., Inc., Worcester, exhibited high-speed steel ground thread hobs, 28 pitch, 60 deg. angle, ground from the solid. The greatest lead error is said to be only 0.0001 in. per inch. Another new item was a high-speed steel thread rolling die, hardened at 2350 deg. Fahr. and ground from the solid.

Among the machines shown by the Anderson Die Machine Co., Bridgeport, was a new dial feed threading machine, which was equipped with an H & G diehead with the tripping arrangement built in the machine. A feature is the clamping attachment for clamping round work during the threading. The machine was in operation on $\frac{1}{4}$ -in. pipe size threading, the production being 40 pieces a minute.

In a group of drilling machines of the Leland-Gifford Co., Worcester, a 14-in. three-spindle heavy-duty unit was equipped with a new tapping attachment, designated as the No. 5 and for taps up to $\frac{1}{2}$ in. Of interest also was a heavy-duty drill press of 9/16 in. capacity, which was equipped with a variable-speed motor mounted directly on the drill spindle. Four spindle speeds from 600 to 1800 r.p.m. are available.

An automatic rivet drilling machine, designated as the No. 1, was new equipment exhibited by the Waterbury Farrel Foundry & Machine Co., Waterbury, Conn. The machine is for the quantity production of hollow rivets by drilling, the maximum size rivet produced being 3/16 in. x 1 in., and the maximum depth of hole, $\frac{1}{2}$ in. The rivets are made on a solid die header with a countersink in the end to facilitate centralizing the drill point. A solid die double-stroke header was in operation making the brass rivets used in demonstrating the new rivet drilling machine. A six-plunger eyelet machine producing brass ferrules at the rate of 110 per min. was a center of interest.

Hardened and ground precision lead screws and thread rolling dies recently placed on the market by the Hanson Tap & Gage Co., Hartford, were on view. The Hanson-Whitney Machine Co., Hartford, had in operation a semi-automatic, motor-driven thread hobbing machine and a vertical die shaping machine. A universal measuring machine for the precision measurement of diameters, thread leads, etc., was shown, and also snap and thread gages.

An exhibit that attracted attention was the new type B F straight line reducing machine shown by the Keller Mechanical Engineering Corporation, Brooklyn, N. Y., and described elsewhere in this issue. Radius and cutter grinders, and flexible shaft grinders were also shown.

The Industrial Gas Equipment Co., New Haven, exhibited among other industrial gas apparatus the Reeves gas-air pre-mixer, which is entirely automatic in operation and which is said to economize gas in industrial uses.

Attractive Exhibits of Gages and Small Tools

Several machine tools of recent development and a large variety of gages and small tools were shown by the Pratt & Whitney Co., Hartford. These included the new model B 6-in. shaper, the 13 in. model B lathe, bench tool equipment including the new No. 3 bench miller and the new two-spindle thread hobber. The Niles-Bement-Pond Co. exhibited a No. 10 6-ft. right line radial drill with direct drive through column from motor to spindle.

The Brown & Sharpe Co., Providence, demonstrated its No. 21 full automatic milling machine. A No. 2A universal milling machine with motor inclosed in the base was also shown, and a No. 00 automatic turret forming machine equipped with a high-speed spindle revolving at 5000 r.p.m. was in operation making filler head screws complete at the rate of 40 per min. There was also an attractive display of standard and special cutters and small tools.

The improved No. 1 and 2X tapping machines of the Garvin Machine Co., New York, were demonstrated with over-capacity taps. A duplex horizontal drill was also in operation, as well as an air operated stop and open head chucking machine.

The Universal Boring Machine Co., Hudson, Mass., showed its new size of Tri-Way universal horizontal boring machine equipped with $2\frac{1}{2}$ in. bar. The Taft-Pierce Co., Woonsocket, R. I., had Archdale type thread millers for both external

and internal threading, also a large display of production, inspection, set-up and other tools. The Hanson two-spindle spline miller was shown by the Taylor & Fenn Co., Hartford, in operation splining tool posts. The T & F high speed vertical milling machine was also in operation. The Bridgeport Safety Emery Wheel Co., Bridgeport, exhibited floor grinders and buffing lathes. The marking machinery displayed by Noble & Westbrook, Hartford, was a center of interest, as were the swaging machines of the Torrington Co., Torrington.

A new H B and H A adjustable collapsing tap was exhibited by the Geometric Tool Co., New Haven, which had a large display of dies, taps, hollow mills and other small tools. Many samples of work cut by the company's tools in the shops of different companies throughout the country were a feature. A new rotary diehead with the chasers supported directly over the cut and faceplate eliminated to permit cutting close up to the shoulder is a new development. There are only three or four working parts and these are hardened. Drill presses, threading machines and a turret lathe equipped with the company's dieheads were in operation.

The Eastern Machine Screw Corporation, New Haven, had an attractive grouping of dieheads, threading machines and other equipment.

New machines to be seen at the exhibit of Henry Prentiss & Co., Inc., Hartford, included a 12-in. cone-head self-contained motor-driven tool room lathe of the Lodge & Shipley Machine Tool Co., Cincinnati. In this machine a reversing motor is mounted on a swiveling plate directly beneath the headstock and the drive arrangement includes a ball-bearing mounted belt idler and self-contained belt shifter. The lathe was in operation on relieving work, and a new universal relieving attachment, which is driven from the back gear shaft by means of sliding gear to a separate gear rather than from the spindle gear, was also a feature.

New Metal Cutting Band Saw

The metal-cutting band saw known as the "Milband," recently brought out by the Henry G. Thompson & Son Co., New Haven, was on view. Positive feed which accurately predetermines the cutting load imposed on the teeth of the blade is a feature. There are six changes of feed-speed and the feed stops automatically at the end of the cut. Fourfold increase in life of blades, unusual accuracy and speed are claimed for the new machine. The positive feed is said to permit the use of one blade, 5 teeth to the inch, for all classes of material, solid or tubing. The cutting of 135 pieces of 6 in. round hot-rolled machinery steel by one blade, the time per cut being 15 min., is claimed. The 6 x 6 $\frac{1}{2}$ in. multiple spindle chucking machine of the Goss & De Leeuw Machine Co., New Britain, Conn., was also in operation at the booth of the Henry Prentiss company. In this machine the cutting tools revolve, the work being held on the turret and fed against the tools. The Teromatic internal grinder of the Giddings & Lewis Machine Tool Co., Fond du Lac, Wis., was also shown.

At the same booth Baker Brothers, Inc., Toledo, Ohio, demonstrated their No. 121 manufacturing drilling machine, the features of which include quick change feeds and speeds, ball bearings, convenient control and foot trip for engaging the feed. The Baker Brothers' No. 24 cam feed automatic drill which has been recently placed on the market was also in operation. The machine is of 1 $\frac{1}{4}$ in. capacity. The cams may be changed readily for different operations and because of the rapid automatic advancing and withdrawing of the spindle the machine is said to be capable of unusually large production. A full automatic high-speed drill and a two-spindle sensitive drilling and tapping machine of the Avey Drilling Machine Co., Cincinnati, were also demonstrated.

A No. 2 universal milling machine of the Cincinnati Milling Machine Co., Cincinnati, was set up for cutting spur and spiral gears and Gould & Eberhardt, Newark, N. J., exhibited their 32-in. Invincible type shaper, improved features of which include direct motor drive and selective type speed box. A No. 3 inclinable open-back power press of the V & O Press Co., Hudson, N. Y., was under power making souvenir ash trays; a threading and trimming machine of the same company was in operation on flashlight cups, which were knurled, threaded and trimmed in one operation at rate of 60 pieces per min.

In the space of Manning, Maxwell & Moore, Inc., New York, an 8-in. stub lathe of the Rockford Tool Co., Rockford, Ill., was demonstrated in the turning of companion flanges. A No. 3 universal milling machine of the Rockford Milling Machine Co., was also shown, as well as a vertical milling machine of the W. B. Knight Machinery Co., St. Louis. The latter was in operation on meter frames, facing 19 bosses at six different heights. A 20-in. "Coneless," geared-head engine lathe of the Boye & Emmes Machine Tool Co., Cincinnati, was exhibited and also a 14-in. geared-head tool room lathe of the Springfield Machine Tool Co., Springfield, Ohio. A 20-in. self-feeding, automatic stop, stationary head upright drill press of W. F. & J. Barnes was demonstrated.

A new type 28-in. vertical drilling machine placed on the market by J. E. Snyder & Son Co., Worcester, Mass., was also exhibited by Manning, Maxwell & Moore, Inc., the continuous automatic feeding capacity of 25 in. by means of steel rack and pinion being a feature emphasized. The National Machinery Co., Tiffin, Ohio, had a triple-head bolt cutter of 1½ in. capacity under power, equipped with double cut attachment to one head. A chaser grinder of the National company was also on view.

High Production Tapper for Small Parts

A variety of machine tools was shown by Purinton & Smith, Hartford. Among these was a new high-speed automatic tapping machine of the Hart & Hegeman Mfg. Co., Hartford, which was set up for tapping two holes in brass upper contacts in one operation. A 4-36 tap was employed and the rate of production was 25,000 holes per 10-hr. day. The machine is provided with three spindle speeds, 1350, 1950 and 2550 r.p.m., and the strokes per minute of the tapping spindle are 45, 65 or 85. Collets are provided to hold taps from 0 to ¼-in. in diameter. The work is carried on a dial.

The new No. 10 duplex miller of the Van Norman Machine Tool Co., Springfield, Mass., was also on view at this booth. As compared to the company's No. ½ duplex miller, the improved features are larger column, base and ram, double the number of spindle speeds by means of a two change gear mechanism, and double driving power to the spindle for making heavier cuts. A self-contained model with a 1-hp. driving motor mounted on a bracket at the base of the machine is available. The machine was demonstrated, equipped with the company's high-speed milling attachment.

The No. 103 internal grinder and a bench lathe with spiral milling attachment of the Rivett Lathe & Grinder Corporation, Boston, were a center of interest. The grinder is now equipped with motor drive arrangement, employing two motors and two headstock speeds; three table speeds and three wheel speeds are available. Drill heads built into four special automatic sensitive high-speed drilling machines for small hole drilling were shown in operation by the Kingsbury Mfg. Co., Keene, N. H., and three quick-change-speed sensitive drill presses by the Sipp Machine Co., Paterson, N. J. Drill chucks were exhibited by the Jacobs Mfg. Co., Hartford, and a 7¼-in. shaper, 3½-in. slotter and a circular dividing table were shown by the Rhodes Mfg. Co., Hartford.

A 14-in. geared-head lathe featuring helical gears in the headstock was exhibited under power by the Monarch Machine Tool Co., Sidney, Ohio, in the space of Purinton & Smith. The Ohio Machine Tool Co., Kenton, Ohio, demonstrated its 16-in. shaper and its 36-in. Dreadnaught shaper. The No. 3 surface grinder for tool room use and the No. 33 vertical spindle surface grinder for light manufactured parts and for grinding the smaller press dies, were shown by the Abrasive Machine Tool Co., East Providence, R. I. Motor-driven double spindle polishing machines of the Diamond Machine Co., Providence, were also among the machines in the space of Purinton & Smith.

Power Back Facing Attachment for Lathe

The "short cut" lathe of the Seneca Falls Mfg. Co., Seneca Falls, N. Y., was exhibited in the space of the Ideal Machinery Co., Plainville, Conn., a new automatic power back facing attachment for bevel gears and similar work being a feature. The bevel work is done in conjunction with the turning. Nine in-feeds are procurable and 27 automatic reverse feeds are obtainable.

A 28-in. Overbeck shaper of the Steel Products Engineering Co., Springfield, Ohio, was in operation at the booth of J. L. Lucas & Son, Inc., Bridgeport, three inclinable power presses of the Loshbough-Jordon Tool & Machine Co., Elkhart, Ind., being among other exhibits in the same booth. An electric spot welding machine of the Acme Electric Welder Co., Philadelphia, was shown in operation by the Machinery Dealers, Inc., New Haven, whose exhibit included several other items of shop equipment.

A No. 3 punch press of the Rockford Iron Works, was among the equipment exhibited by Botwinik Brothers, New Haven, the press being in operation making special steel washers. Hisey-Wolf portable drills and grinders, and other machines were also in operation.

A variety of equipment including files, drills, taps, portable tools, gears, clutches and gas welding apparatus was shown in the space of C. S. Mersick & Co., New Haven.

One of the largest exhibits was that of the Page, Steele & Flagg Co., New Haven, which included ball bearings, transmission appliances, small tools, chucks and other equipment.

Several companies making ball bearings were represented, also manufacturers of acetylene gas welding equipment and supplies, and makers of portable electric drills. In addition to an electric tempering furnace and other equipment, the General Electric Co., New Haven, exhibited arc welding apparatus in operation.

MACHINE TOOL SELLING

Serial Payments, Advertising and Expositions Discussed at New Haven

Advertising, time sales of machine tools, and expositions were among the subjects discussed at a conference of the sales managers' group of the National Machine Tool Builders Association, held on Sept. 16 during the Machine Tool Exposition at Mason Laboratory, New Haven, Conn. E. F. Du Brul, general manager of the association, presided at the conference.

Frederick Heitkamp, Cincinnati Milling Machine Co., Cincinnati, chairman of the association's sales managers' committee on advertising, outlined the purposes and accomplishments of the committee, which is formulating a report to be presented at the fall meeting of the association. Constructive criticism from the Eastern group of sales managers was asked for and received, the value of cooperative advertising being one phase of the discussion. E. P. Blanchard, Bullard Machine Tool Co., Bridgeport, and L. A. Hastings, Heald Machine Co., Worcester, were among those participating.

The discussion on expositions centered around a report of the results of a questionnaire submitted to the association's membership. The view generally taken was that the machine builders at present are called upon to exhibit too often. Concentration on fewer expositions found favor in most cases, and inquiry developed the fact that the exhibition of the Railway Supply Manufacturers Association was popular. Opinion was divided on the advisability of an annual exhibit by the machine tool builders themselves.

A committee was appointed from the Eastern group to make definite recommendations in answer to the

question, "When do tools and patterns become obsolete?" It is the hope that such a report will be instrumental in standardizing practice in this respect.

Serial payments as applied to machine tool sales were discussed by C. A. Opel of the New Amsterdam Credit Corporation, 342 Madison Avenue, New York. In the plan presented, which was vigorously discussed, the buying of machine tools out of income rather than out of capital was emphasized. The ability of the time payment plan to stimulate sales of tools was the focal point of the discussion.

During the past week the Carnegie Steel Co. started two blast furnaces in its Ohio Works group at Youngstown, No. 2 and No. 4, leaving but one inactive stack in this complement. The idle furnace is being rebuilt. These resumptions bring the total number of active blast furnaces in the Youngstown district to 20, of 45, representing about 55 per cent of the gross iron producing capacity of the territory. According to present plans, the Mattie blast furnace at Girard of the A. M. Byers Co., Pittsburgh, will blow in about Oct. 20, following an extended idleness.

H. A. Taylor, a director of the Newton Steel Co., Youngstown, back from a trip to Europe and the British Islands, observes that building activity is being carried forward in and near Paris to an exceptional degree. He points out that broader construction in Europe will absorb much of the output of European steel properties and to that extent reduce the degree of their competition in foreign markets. Mr. Taylor foresees a growing demand in Europe for the moderate-priced American-made automobiles.

British Non-Ferrous Alloys

American Authors Discuss Brass Tubes and Aluminum Alloys Before Institute of Metals—Metal Spraying and Nickel for Coins

(Special Correspondence)

LONDON, Sept. 9.—The autumn meeting of the Institute of Metals opened yesterday with an address by W. M. Corse, of which a report has already appeared in *THE IRON AGE*, Sept. 18. This was followed next day by the reading of papers, several of which were from the United States. In one of these, a new method for measuring internal stress in brass tubes was described by R. J. Anderson, Boston, and Everett G. Fahlman, Cleveland, Ohio.

Stress in Brass Tubes

The authors showed that the major stress is longitudinal, and the stress in the outer part of the wall of the tubing is a longitudinal tensile stress, while that in the inner portion is a longitudinal compressive stress. The summation of the balanced stresses, of course, is zero. Absence of circumferential stress in tubes is indicated by the failure of diametrically cut rings to spring in or out on being slit in two. Experiments showed that the usual cutting methods which have been applied to bars and rods for the estimation of stress are not applicable to tubes, especially where the bulk of the stress is longitudinal.

The method described by the authors is called the strip method, and is carried out by slitting a narrow strip longitudinally in a piece of tubing; for example, a strip 2.75 in. long and 0.10 in. wide in a 3.25 in. tube length, and then releasing one end of such a slit strip by cutting. Stress is indicated by the springing out of the freed end and can be calculated by a formula based upon the modulus of elasticity of the material and the distance in movement of the freed end. The method is useful for determining the amount of internal stress in cold-drawn tubes, and for examining quantitatively the effect of a low-temperature anneal upon stress release. Because a wrought brass does not crack under the application of an accelerating cracking agent, it does not follow that the material is free from internal stress.

Copper-Silicon-Aluminum Alloys

From the results of an investigation described by E. H. Dix, Jr., metallurgist, engineering division, U. S. Air Service, and First Lieut. A. J. Lyon, Dayton, Ohio, it is concluded that the copper-silicon-aluminum alloy is well adapted for complicated castings which do not require a large amount of machining. Little machining is required for such as crank-cases, manifolds, cover plates and other parts of aircraft engines, and the finishing of castings can practically all be done on a milling machine. This alloy is recommended as a substitute for the No. 12 alloy wherever foundry difficulties due to shrinks, draws and cracks offer serious difficulty.

The casting properties of Alpax are very similar to those of the copper-silicon-aluminum alloy, but it is not considered a practical alloy from the air service standpoint, due to the fact that it has a very low proportional limit and is inferior to the copper-silicon alloy in this respect.

Lynite 195 is shown to have uniform and desirable physical properties. The proportional limit is considerably above any of the alloys tested. The foundry practice, however, is more difficult for this type of alloy, and the fact that it has to be heat-treated increases the cost of production. The tendency to warp and crack during the heat-treatment would necessitate provision being made in the design for the use of this alloy; that is, a large complicated casting designed for either No. 12 or copper-silicon-aluminum alloy probably could not be poured in Lynite 195 with any degree of success. Eight per cent copper-aluminum alloy is suit-

able for the general run of castings and can be cast in sections 3/16 in. or greater in thickness without any serious trouble. It is liable to shrinkage cracks, but this can largely be overcome in many designs.

Cold Rolling of Copper

Rawdon and Mitchler of the Bureau of Standards, U. S. A., have recently stated that in the cold-rolling of copper, iron, tin and other metals and alloys, the Brinell hardness rose rapidly during the initial stages of deformation and then diminished; "the metal becomes softer and in its final form may be softer than the metal in its initial stage."

Experiments have been carried out at the Research Department, Woolwich, by Dr. H. Moore to test this surprising conclusion. An annealed copper bar was cold-rolled from 3.12 in. to 0.0125 in. thickness, one-half of the material being withdrawn for testing after each reduction of 50 per cent of the thickness. The Brinell hardness number was 48 in the annealed bar, 98 after the first reduction of 50 per cent, rose at each subsequent reduction and reached 130 when the thickness was reduced to 1/250 of the original thickness. The results give support to the suggestion that severe cold-rolling of copper beyond a certain stage induces softening, and Dr. Moore considers that convincing evidence of any such effect occurring generally in metals and alloys is still lacking.

Metal Spraying

The process of metallization invented about 10 years ago and generally known as Schoop's metal spray process was described by T. H. Turner and W. E. Ballard, who consider that the metal-spray process is capable of aiding in the preservation of the world's metallic resources. Practically any metal available in wire form and fusible in the oxy-hydrogen flame may be sprayed on to any surface. Considerable technical experience has now been obtained and completed structures are being uniformly coated all over with any desired metal for protection against atmospheric corrosion, chemical attack or furnace conditions. It has found a particular field in ship work and is recommended for the zincing of rail ends and fish plates for connecting purposes on electric railways as it does away with the necessity of copper connections and continual cleaning.

Extrusion of Brass Rods

The experiments carried out on a manufacturing scale and described by R. Genders of the Research Department, Woolwich, have provided ample data to show that the inverted process of extrusion is incapable of producing internally defective brass rod when sound billets are used. This method has the advantage, in the case of the production of engineering material, that all possibility of the occurrence of the "core" defect is excluded, and that, if defects are allowed to arise, they will be visible on the surface of the rod. It is thus safe to extrude the billet nearly completely and so reduce scrap to a minimum without risk of the rod being affected internally. The experiments described confirm the previous small scale work as regards the type of flow, internal soundness of rod and the saving of power.

Gun-Metal Tests

F. W. Rowe gave results of some typical tests on admiralty gun-metal (copper 88 per cent, tin 10 per cent, zinc 2 per cent) conducted under works conditions.

Three boxes of test bars were molded, each containing three bars, one 12 in. by $\frac{1}{2}$ in. by $\frac{1}{2}$ in.; one 12 in. by 1 in. by 1 in. and one 12 in. by 2 in. by 2 in. The boxes were cast at 1200, 1150 and 1100 deg. C. Tensile, hardness and impact tests were made on the bars thus obtained. The figures show that the best results were obtained in all sizes of bars with the lowest casting temperature, i.e., 1100 deg. C. and the best tests of all with the $\frac{1}{2}$ in. square bar cast at that temperature.

Mr. Rowe also described experiments on the casting temperature and heat treatment of a bronze of the following composition: Copper, 86.0, tin, 15.95 and phosphorus, 0.05 per cent. The result showed that although the greatest hardness (and probably the best wearing properties) is obtained with the lowest casting temperature, 650 deg. C., such a casting temperature is very often not practicable on account of the danger of "draws" in uneven sectioned castings.

Sir Thomas K. Rose and T. H. Watson have found it impossible to prepare coins containing 99 per cent nickel with 1 per cent of manganese, magnesium, carbon, iron, silicon, etc., such as are manufactured with the aid of hot rolling. By the addition of 2 per cent manganese, however, castings can be prepared suitable for cold rolling and conversion into coin. The carbon must not exceed 0.20 per cent and the bars should be not less than 1 in. thick and 2 in. wide. The maximum crucible charge tried was 100 lb. Monel nickel with the addition of not more than 50 per cent of scrap makes a suitable charge. Four annealings are necessary, two at 800 deg. during rolling and one at 675 deg. after rolling and before cutting. The blanks are also annealed. Air is excluded during annealing. The blanks are cleaned before striking by rumbling in a wooden drum with half their weight of nickel pellets in a $2\frac{1}{4}$ per cent acetic acid solution for $\frac{1}{2}$ hr.

INDUSTRY AND THE DAWES PLAN

German Iron and Steel and Other Branches to Issue Bonds—Details of Operation

BERLIN, GERMANY, Aug. 28.—The Government has sanctioned the bill for the obligations which industry has to bear under the Dawes report for the sum of 5000 million gold marks (\$1,190,000,000). The amounts necessary for the payment of interest and amortization are to be charged to industrial undertakings in relation to the value of the property, above 50,000 gold marks (\$11,900). Every firm has to hand over to the trustee bonds to the value of its obligation; he may dispose of them in the international money market up to the value of 500 million gold marks. These negotiable bonds may be demanded from the large undertakings, whose obligations amount altogether to 1500 million gold marks, up to 50 per cent of their obligations, but only 500 millions may be disposed of and every firm has first the option to buy its own bonds.

Four large industries—iron and steel, engineering and electrical, chemical and textile—have to bear a minimum obligation, which amounts to 20 per cent of the total industrial obligation for the first, 17 per cent for the second, 8 per cent for the chemical, and 7 per cent for the textile industry. The minimum fixed has to be taken up by the respective industry up to 90 per cent of the full amount, but a correction is possible through a court of arbitration.

Bonds not brought onto the market form the basis for so-called industrial bonds, which are issued by a new bank, the Industrie Obligationen Bank, and which are handed over to the trustee nominated by the Reparation Committee. The bank is erected, under the auspices of the German banks, by the industry in the form of a share company with a capital of 10 million gold marks (\$2,380,000). Its majority stock is to be in German hands, but the interests of the Allies and the creditors are to be safeguarded by representatives on the board of supervision. The Industrie Obligationen Bank may buy its bonds in the open market and destroy them, and it may pay up the entire loan after 1937.

Every firm also may buy its own bonds or pay a lump sum in lieu of giving bonds. The bonds are free from taxes. Any differences between the bank or the Government and the Reparation Committee or the trustee are to be settled by an arbitrator jointly nominated by the Government and the Reparation Committee. It is not yet possible to estimate the financial responsibility of every individual undertaking under the scheme, but it must be acknowledged that the freedom of industry is not interfered with.

On account of the placing of the 800 million gold mark (\$190,400,000) Government loan, the bonds probably can be disposed of only at a discount, but

the obligation of industry is reckoned at their nominal value. It seems sure that German industry will be unable to regain its full productiveness without the aid of extensive foreign credits, and there are also private negotiations.

Increased Activity in the Connellsville Coke Region

UNIONTOWN, PA., Sept. 20.—More than 1500 ovens have been put in operation in the Connellsville coke region since Sept. 1, approximately 800 having been put in during the past ten days. The major portion of the increase has been at plants of the H. C. Frick Coke Co. The Oliver-Snyder Steel Co. will put 200 ovens in on Oct. 1. Two hundred additional ovens have been fired during the week by the Lincoln Coal & Coke Co.

The upward swing of the industrial pendulum has started definitely, ending the slow drag toward better business conditions in the region. There is every indication that the increase will continue gradually, judging from the number of legitimate inquiries both for coal and coke which have been received in the region during the past few weeks.

The Brier Hill Coke Co., taken over some months ago by the Youngstown Sheet & Tube Co., has resumed coal mining operations after extensive improvements have been made to the plant. Its output will be about 2000 tons a day. Operations have also been resumed at the Nemaquin plant of the Buckeye Coal Co., another subsidiary of the Youngstown Sheet & Tube Co., and is producing approximately 3000 tons of coal a day.

Connellsville *Courier* figures show total coke production so far this year as 4,974,480 tons as compared with 10,183,840 tons during the same period in 1923.

"Non-Corrosive and Heat-Resisting Steels" is the title of a small pamphlet issued recently by the Crucible Steel Co. of America. Its 20 pages discuss several of the more modern types of these steels, including "Re-zital" alloys, Athas 2600 alloy and stainless iron, as well as stainless steel. This booklet is offered "to all those whose needs have not been met, whose dreams have not come true as to the realization of hopes for new processes, better apparatus, improved yields, increased efficiency and decreased costs, simply because the right materials were not at hand."

The Baltimore & Ohio freight car repair shops at Sandusky, Ohio, which have been operating on a five day per week schedule since they were reopened a month ago, following a year's shut down, have been placed on a six day per week basis, effective at once.

NON-FERROUS RESEARCH

An American Metallurgist's Impression of British Progress—Interview with W. M. Corse

(Special Correspondence)

LONDON, ENGLAND, Sept. 6.—W. M. Corse, National Research Council, Washington, who has just returned to London after a visit to several industrial centers in England, and whose autumn lecture before the Institute of Metals is arousing considerable interest here, has been good enough to give THE IRON AGE's representative some of the impressions he has gathered during his stay in England.

Foremost in Mr. Corse's thought is the very considerable progress that has been made in non-ferrous metallurgy in this country, and he expressed his entire agreement with the view of Dr. Walter Rosenhain that a great deal has been done in England from which America has benefited. He instanced aluminum bronze, which, though made in the United States, was scientifically developed in England. It was the scientific investigations conducted on this side of the Atlantic

which, according to Mr. Corse, formed the basis of the practical work undertaken on your side.

Mr. Corse is much impressed by what he has seen of the work of the Non-Ferrous Research Association and is of the opinion that an institution of a similar character is highly desirable in the United States. Here, the basis of research is much broader, because it receives its support not only from manufacturers, (who are nationally disinclined to disclose results of investigations which may benefit a rival) but from interested users of metals and alloys. In America, said Mr. Corse, (and he was referring to non-ferrous metallurgy only) research is undertaken primarily for the purpose of solving shop problems, and a particular inquiry is discontinued after the specific object sought has been brought within range of solution. Research in England, however, is not so much concerned with specific shop problems as with fundamental scientific principles, and its results are available for the benefit of the industry generally, instead of remaining the exclusive possession of an individual manufacturer.

Mr. Corse was surprised to find a much wider use of molding machinery than he anticipated would be the case in view of the opposition of the trade unions.

IRON AND STEEL INSTITUTE

British Metallurgists Discuss Research and Special Alloys at Fall Meeting

(Special Correspondence)

LONDON, ENGLAND, Sept. 9.—Following the usual custom, Sir William H. Ellis, in his opening remarks at the autumn meeting of the Iron and Steel Institute held in London on Sept. 5, announced that his successor in the presidential chair next year would be Sir Frederick Mills, a gentleman well known in the steel industry and managing director of the Ebbw Vale Steel & Coal Co. Prof. H. le Chatelier, W. H. Hewlett, E. Steer and C. J. Bagley have been elected honorary vice-presidents, and Sir Charles Wright, E. W. Harbord and W. R. Ly-saght ordinary vice-presidents. It was proposed to fill the vacancies on the council by the appointment of Dr. Cecil H. Desch, Capt. Valentine Beardmore Stewart and William Simons.

Serious Position of British Industry

Sir William Ellis said it was impossible for a gathering of that kind to disregard the serious position of the British iron and steel industry, and he referred to this matter for the reason that there had never been a period when the technical knowledge of members could be placed at the disposal of the industry to better effect than at the present time. The ironmasters of other countries had been able to spend more money on new plant and in renewing works equipment than British manufacturers, who were still struggling with economic difficulties as well as with conditions of severe financial stringency. Yet, whatever the monetary difficulties, and they would tend to increase rather than diminish, it was necessary to impress on those responsible for the management of British iron and steel works the essential need of keeping their plant and equipment in line with the most modern practice.

He put forward a plea to the steel-makers and maintenance engineers who were, day by day, carrying on manufacturing processes and were responsible for administration, and who could not, therefore, keep in touch with the latest scientific developments, that they should utilize the knowledge of the younger men. Many of the latter had a sound training on the technical side and could suggest how economies in manufacturing costs could be realized.

Research on Alloys of Iron

The chief feature of interest at the meeting was the account given in a joint contribution from the National Physical Laboratory of a research on the alloys

of iron, particularly in relation to the influence of oxygen on the properties of the material. This research, which was begun a year ago under the auspices of the newly-formed Ferrous Alloys Research Committee, is a fundamental investigation which bears upon the everyday problems of the manufacturing industry. That it has not been undertaken by one of the great works laboratories is explained by the fact that the task involved is too heavy for any establishment except a state institution well staffed and properly equipped and assisted by university laboratories in certain sections of the work.

Dr. W. Rosenhain, in an introductory statement, pointed out that the work which was being done was necessary for a satisfactory knowledge of the alloy steels now in use, and would no doubt cover a whole group of other steel alloys, the properties of which were at present unknown. This great field had hitherto been explored mainly by methods of trial and error, with the result that although a number of most important materials had been developed, it was unlikely that the possibilities had been exhausted. He referred to the recent production in America of a magnetic alloy of remarkable properties in the iron-nickel series (perm-alloy) as showing how much yet remained to be discovered.

The research having for its object the determination of the constitution of the iron-oxygen alloys, and the effect of oxygen and iron on the mechanical and physical properties of iron was conducted by F. S. Tritton and Dr. D. Hanson, while T. E. Rooney investigated the estimation of oxygen in pure iron.

Sir Robert Hadfield said the iron and steel industry would look forward to obtaining not merely information valuable from the scientific standpoint, but knowledge which could be applied in practical work.

Prof. C. H. Desch reminded the meeting that the work of research now in hand was so difficult that a somewhat similar investigation had been abandoned by American workers.

Dr. W. H. Hatfield regarded the problem that was being attacked, the relation of oxygen to iron, as the most important on the technical side with which steel manufacturers were confronted at the present time.

Domestic sales of oak leather belting for August are reported by the Leather Belting Exchange, representing about 60 per cent of the total product, at 326,901 lb., valued at \$551,809, or an average of \$1.69 per lb. Comparative figures for July are 320,231 lb., valued at \$540,230, or an average of \$1.69 per lb. For August, 1923, the amount was considerably greater, with 466,258 lb., valued at \$881,228, or an average of \$1.89 per lb.

Machinery Markets and News of the Works

NO GAIN IN DEMAND

Machine-Tool Markets Continue Dull Though Inquiries Increase Slightly

Railroad Requirements the Principal Item of Importance but Are Not Large in the Aggregate

Reports from machine-tool selling centers such as Chicago, Cincinnati, Pittsburgh, Cleveland, Boston and New York indicate no marked change for the better in the machine-tool situation. Business is dull and though inquiries have increased slightly in some sections, the improvement is not important enough to give much ground for optimism.

Railroad requirements are probably the best pros-

pects. The list of the Chesapeake & Ohio, comprising 30 or 40 machines, and the much smaller inquiries of several other roads in the East are fairly promising, but most of the equipment sought is of special railroad type and its purchase will benefit a few companies and not the machine-tool industry as a whole. At Chicago no extensive railroad buying is in immediate prospect, but the Illinois Central is expected to issue an extensive list this fall.

The Universal Portland Cement Co. has ordered about a dozen tools for its plant at Universal, Pa., and the Carnegie Steel Co. is inquiring for a list of about a dozen items for its Homestead works. The Timken Roller Bearing Co., Canton, Ohio, is expected soon to purchase considerable equipment, mostly grinding machines.

New York

NEW YORK, Sept. 23.

SENTIMENT is somewhat more cheerful in the local machine-tool trade, but inquiries and orders have shown no appreciable gain. Machine-tool salesmen who attended the machine-tool exhibit at New Haven, Conn., last week returned with the belief that somewhat improving business will mark the next few months, this judgment being based on their contacts with other machinery salesmen and representatives of manufacturing industries.

Railroad requirements constitute the chief prospects, the inquiry of the Chesapeake & Ohio for 30 to 40 tools being the principal list before the Eastern trade. The New York Central has inquired for a few machines, and small lists are still pending from the Lehigh Valley, Lehigh & New England and the Delaware, Lackawanna & Western. The placing of these orders will not, however, benefit the machine-tool industry as a whole, as many of the machines inquired for are special railroad equipment made by only a few companies. Among the more important orders of the past week are the following: General Electric Co., plate flanging clamp; Sante Fe Railroad, 90-in. journal turning lathe; Bethlehem Steel Co., two axle lathes; Forged Steel Wheel Co., 48-in. car-wheel borer; Erie Railroad, 48-in. car-wheel borer.

The New York Central Railroad Co., 466 Lexington Avenue, New York, has awarded a general contract to H. B. Cummings, Ware, Mass., for a two-story shop at its works at West Albany, N. Y., 50 x 215 ft.

Siebenmann, Mosca & Co., 493 Defensa, Buenos Aires, Argentina, are desirous of getting in contact with manufacturers of iron bars and hardware products for their trade in the River Plate Republics.

The Noble Machinery Co., Inc., 237 Lafayette Street, New York, has inquiries out for an automatic screw machine, Brown & Sharpe type.

Philip Freshman, 350 Fulton Street, Brooklyn, architect, is completing plans for a one-story automobile service, repair and garage building, 145 x 275 ft., at 15-39 Bay Ridge Avenue, to cost approximately \$150,000 with equipment.

In connection with its proposed ice-manufacturing and refrigerating plant at Middletown, N. Y., the Certified Ice & Refrigerating Co., 7 Water Street, New York, is contemplating a similar two-story plant at Newburgh, N. Y., with cost estimated at \$30,000. Harold E. Paddon, 1350 Broadway, New York, is architect. J. A. Stiles, company address, is in charge.

The Kundley Power Co., Ltd., Calcutta, India, recently formed with a capital of \$1,600,000, is developing plans for extensions in the hydroelectric power project of the Tata Hydroelectric Supply Co., including the construction of a power dam in the Kundley Valley, Poona, district, and the installation of an 8000 kw. generator and accessory machinery at the power plant at Khopali. The entire development is estimated to cost \$2,500,000.

The Northern Peru Mining & Smelting Co., Samme, Peru, has authorized the construction of an aerial tramway from the terminus of its present line at Milluachaq, about 6 miles from the mill at Samme, to a point near Quiruvica, 18½ miles distant, the site of a new smelting plant to be operated by the company.

The Standard Commercial Body Corporation, 423 East 104th Street, New York, will erect a two-story automobile body, service and repair building, 100 x 100 ft., at 430-36 East 104th Street, to cost \$60,000. Cannava & Viviano, 47 West Forty-second Street, are architects. William Raskin is president.

The Staten Island Edison Corporation, St. George Terminal, Tompkinsville, E. I., is arranging for enlargements and betterments in its generating plant at Livingston, to include the installation of a 15,000 kw. turbo-generator with accessory equipment; two 1385-hp. horizontal watertube boilers and auxiliaries. A new power substation will be established at this location.

The Dubiller Condenser & Radio Corporation, 43 West Fourth Street, New York, manufacturer of wireless apparatus, has plans for enlargements and additional equipment for increase in capacity.

John J. Dunnigan, 2382 Grand Concourse, New York, architect, will begin the construction of a two-story automobile service, repair and garage building, 100 x 105 ft., at Morris Avenue and 164th Street, to cost about \$55,000; also for a similar two-story building, 73 x 100 ft., at Marion Avenue and 184th Street, to cost approximately \$50,000.

Motors, controls, conveying machinery and other equipment will be installed in the eight-story newspaper printing and publishing plant to be erected at Atlantic and Flatbush Avenues, Brooklyn, for the Brooklyn Daily Times, estimated to cost \$500,000. Helms & Corbett, 130 West Forty-second Street, New York, are architects.

Manual training equipment will be installed in the two-story and basement high school to be erected on North Avenue, New Rochelle, N. Y., estimated to cost \$1,000,000, for which bids will soon be called on a general contract. Guilbert & Betelle, Chamber of Commerce Building, Newark, N. J., are architects.

The New Jersey Power & Light Co., Dover, N. J., has acquired the electric power plant and system of the Branchville Electric Power & Lighting Co., Branchville, N. J., and will take immediate possession. The interest will be consolidated with the purchasing organization, and plans are under way for extensions and improvements. The New Jer-

sey company has also applied for permission to take over and merge the power plants and properties of the Vulcan Power Co., Netcong, N. J., and the Eastern Pennsylvania Power Co., Columbia and Phillipsburgh, N. J.

The Matthews Co., 101 Arlington Street, Newark, N. J., manufacturer of silverware, metal goods, etc., is taking bids for its one and two-story plant, 45 x 70 ft. and 25 x 38 ft., Irvington, estimated to cost \$35,000.

The Nuse Wagon & Auto Co., 92 Frelinghuysen Avenue, Newark, has plans for a two-story addition, 25 x 68 ft., estimated to cost \$25,000, for which bids are being asked on a general contract. Nathan Harris and Rudolph Kruger, Chamber of Commerce Building, are architects.

The Charles Eisler Engineering Co., 752-58 South Thirteenth Street, Newark, manufacturer of mechanical specialties, has plans for a one-story addition. Charles Eisler is head.

The Board of Education, Carteret, N. J., plans the installation of manual training equipment in its new high school on Washington Avenue, for which a general contract has just been let to the George W. Mercer Co., Perth Amboy, N. J. It will cost about \$250,000 with equipment.

The International Harvester Co. has purchased the block between Thirteenth, Fourteenth, Hamilton and Hancock Streets, Long Island City, N. Y., on which a one-story building will be erected containing about 50,000 sq. ft. of floor space to be used as a service department.

The Union Wire Cloth Corporation, 401 Concord Avenue, New York, recently organized to manufacture wire products, is looking for machinery and hopes to be in operation within two months. A. Simons of the Union Wire Dye Co., same address, heads the new company.

F. H. Crawford & Co., 299 Broadway, New York, are in the market for a 1-in. Acme triple bolt cutter, arranged for direct connected motor drive.

Philadelphia

PHILADELPHIA, Sept. 22.

PLANS have been completed for a one-story power house, 61 x 98 ft., at the Germantown Dispensary and Hospital, 530 East Penn Street, Germantown, Philadelphia, to cost \$55,000, for which foundations will be laid at once. Arthur H. Brockie, 254 South Fifteenth Street, is architect.

Work is being pushed on the addition to the South Philadelphia plant of the Westinghouse Electric & Mfg. Co., East Pittsburgh, totaling about 150,000 sq. ft., forming a complete operating unit. It is purposed to have the works ready for production in December, giving employment to about 600. The addition will be used for turbine blading shops for turbo-generator production, replacing this branch of production heretofore handled at the East Pittsburgh plant.

The Badenhause Corporation, Philadelphia, has applied for a State charter to take over and expand the Badenhause Co. and Badenhause Boiler Co., 1011 Chestnut Street, with plant at Cornwells, Pa. The new company will manufacture boilers, superheaters, tanks, heating apparatus and power equipment.

The Foreign Trade Bureau, Philadelphia Commercial Museum, has received the following inquiries: 42635, from Rafael Rodriguez Barril, P. O. Box 517, San Juan, Porto Rico, desiring to get in contact with American manufacturers of standard wrought steel pipes, galvanized and malleable, barbed wire and wire nails; 42627, from Enrique Botta G., Salcedo Building, Calle Hartmann y Aguilera, Santiago, Cuba, wishing to get in touch with manufacturers of wire fencing and netting; 42618, from S. C. Chunder, 7 Sastitolla Road, Kidderpore, Calcutta, India, desiring to get in touch with manufacturers of drilling, sawing and boring machines, envelope-making machines, match-making machines, electric pocket batteries, wire goods, carpenters' tools, surveying and drawing instruments; 42636, from J. Isaacs & Co., 52 St. George's Street, Cape Town, S. A., interested in cement machinery, rice machinery, shovels, spades, wheelbarrows, wire fencing and netting; 42631, from the Indo-American Trading Co., Central Bank Building, Esplanade Road, Bombay, India, interested in getting in touch with manufacturers of iron and steel sheets, bolt and nut machinery, textile machinery, railroad and tramway supplies, pumping machinery, nails, etc.

The Standard Oil Co. of New Jersey, 26 Broadway, New York, has plans for a one-story car repair shop at River and Second Streets, Camden, N. J. A one-story pumping plant will also be built. The engineering department, Elizabeth, N. J., works, is in charge.

The School Board, Bethlehem, Pa., will conduct a course in automobile mechanics at the trade school and plans will

be drawn for a one-story machine shop addition. It will cost approximately \$25,000.

Manual training equipment will be installed in the new high school at Easton, Pa., estimated to cost \$1,000,000, for which superstructure work will be placed under way at once. The Board of Education is in charge.

Elevating, hoisting, conveying and other equipment and power apparatus will be installed in the seven-story and basement terminal warehouse, 150 x 200 ft., to be erected by the Lehigh & New England Terminal Warehouse Co., Bethlehem, Pa., estimated to cost \$1,000,000, at Rosemont, near Bethlehem. The company was formed recently and is understood to be affiliated with the Lehigh & New England Railroad Co. C. H. Moores, 110 East Forty-second Street, New York, is architect; Moores & Dunford, same address, are engineers.

The Sinclair Consolidated Oil Corporation, 45 Nassau Street, New York, has started the construction of a new storage and distributing plant at Island Park, near Northumberland, Pa., with cost reported at \$75,000 including equipment.

R. A. Kuenzig, North Girard, Pa., is in the market for machine shop equipment and a 110-volt, single-phase, 60-cycle electric motor.

Chicago

CHICAGO, Sept. 22.

THE machine tool market is still exceptionally dull, although inquiries are more promising. In many cases, however, new prospects are uncovered only after persistent sales effort and in few instances are buyers in any great haste to conclude their purchases. Much shopping around among the various local houses is being done and for that reason, no doubt, prospective business seems out of proportion to actual bookings. The Sante Fe, which recently closed for a large number of tools, has placed a few additional orders with Pacific Coast dealers, including two vertical boring mills. The Big Four is inquiring for two 5-ft. radial drills. The Illinois Central is expected to issue an extensive list some time this fall, but otherwise no large railroad buying is in prospect.

The Nash Motor Co. continues to buy a few tools from time to time and the Ajax Motor Co., Racine, Wis., has closed for a number of special purpose machines, but will not buy standard equipment for several weeks. The machine tools from the Lafayette Motor Co. plant at Milwaukee have been moved to the Ajax works. Current orders are largely for one or two machines, although in some cases they involve large tools, representing a considerable investment. A Michigan buyer, for example, has closed for a universal horizontal boring and drilling machine. The Russakov Can Co., Chicago, has bought three punch presses.

William Schukraft & Son, manufacturers of automobile truck bodies, 943 Fulton Street, Chicago, have purchased 140 x 200 ft., at the corner of Washington and Ann Streets, and will improve the property with a three-story reinforced concrete shop which they will occupy.

The Manz Engraving Co., 4015 Ravenswood Avenue, Chicago, has awarded a general contract for a three-story reinforced concrete addition, 80 x 165 ft., to cost \$160,000.

The Singer Paper Box Co., 815 West Congress Street, Chicago, is taking bids through B. Leo Steif, 64 West Randolph Street, on a one-story mill construction factory and sales room building, 127 x 131 ft., at the corner of North Oakley and Austin Avenues, to cost \$75,000.

The R. H. Donnelly & Sons Co., 731 Plymouth Court, Chicago, has awarded a general contract for a three-story printing plant addition, 100 x 165 x 225 ft., at 2101-37 Calumet Avenue, to cost \$250,000.

The American Radiator Co., 816 South Michigan Avenue, Chicago, has awarded contract for a one-story storage building, 200 x 260 ft., at 3501-25 West Thirty-first Street, to cost \$250,000.

The Nye Tool & Machine Co., 108 North Jefferson Street, Chicago, has awarded contract for a one-story factory, 100 x 300 ft., at 4120-30 Fullerton Avenue, to cost \$90,000.

The Ajax Fence Co., Fort Madison, Iowa, is erecting an addition, 60 x 120 ft., doubling its present capacity. The new building will house the equipment of the Decatur Mfg. Co., Decatur, Ill., which was recently purchased by the Ajax Fence Co.

The Fairfax Iron & Steel Co., incorporated with \$1,000,000 capital stock, is erecting a plant in the Fairfax industrial

The Crane Market

NEW inquiries for overhead cranes are not appearing in more than small numbers, but sellers of locomotive cranes, in view of the number of inquiries active at present, expect to see a fair number of orders closed before long. A locomotive crane inquiry now current is from the Lehigh & New England Railroad, Bethlehem, Pa., for a 20-ton machine. Among inquiries still active is one from Stone & Webster, Boston, for a 75-ton overhead crane for the Luzerne County Gas & Electric Co., Kingston, Pa. There are also the lists of cranes for the Bethlehem Steel Co. plants. The Union Smelting & Refining Co., Newark, which is planning the erection of two new foundry buildings, will be in the market for some material handling equipment of small capacity. The Edmund Shuttleworth Co., Vernon Avenue, Long Island City, New York, is asking for prices on a used 5-ton crane, 40-ft. to 60-ft. span, 3-motor, alternating current.

Among recent purchases are:

Bethlehem Steel Co., Bethlehem, Pa., fifteen 10-ton jib cranes for its Lackawanna plant, from the Whiting Corporation.

Stone & Webster, Boston, a 20-ton locomotive crane for the Luzerne County Gas & Electric Co., Kingston, Pa., from the Browning Co.

Gulf Refining Co., 31 State Street, New York, a 5-ton, 38-ft. span, 1-motor, overhead crane, from Alfred Box & Co. Stillman-Delehanty-Ferris Co., Jersey City, N. J., a 25-ton used Ohio locomotive crane, from the Holsting Machinery Co., 50 Church Street, New York.

Thomas Pidgeon Iron Co., Memphis, Tenn., a 5-ton, 62-ft. 2½-in. span, 5-motor, overhead traveling crane, from the Shepard Electric Crane & Hoist Co.

Interborough Rapid Transit Co., New York, for Seventh Avenue and 148th Street, two 4-ton, cage control, monorail hoists, from the Shepard Electric Crane & Hoist Co.

Goodyear Tire & Rubber Co., Akron, Ohio, a 2-ton, 18-ft. 9-in. span, 3-motor, single I beam crane of special construction, from Shepard Electric Crane & Hoist Co.

Algonquin Paper Corporation, Ogdensburg, N. Y., a 2-ton, 55-ft. span, monorail hoist and transfer crane, from the Shepard Electric Crane & Hoist Co.

Southwestern Portland Cement Co., Dayton, Ohio, a 10-ton, 34-ft. span hand power crane, from the Northern Engineering Works.

Baltimore & Ohio Railroad, a 10 ton traveling ore bridge to replace Lorain, Ohio, bridge wrecked by tornado, from Heyl & Patterson, Inc.

district, Kansas City, Kan., to manufacture steel, gray iron and malleable castings, frogs, switches and other equipment.

The Great Northern Railway Co., St. Paul, Minn., is completing plans for the electrification of a portion of its lines in the State of Washington, the initial section to be that over the summit of the Cascade Mountains. It is proposed to build a central generating plant on the Chelan River, with several smaller hydroelectric units in the same district for power for the entire project. It will cost \$5,000,000.

The Standard Oil Co., Decatur, Ill., has revised plans for the erection of an oil storage and distributing works at Fourteenth and McCausland Streets, East St. Louis, Ill., to be one and two-stories, 80 x 200 ft. and 85 x 118 ft., to cost approximately \$150,000 with equipment. Schlitz & Bailey, Monadnock Block, Chicago, are engineers.

The Iowa Railway & Light Co., Cedar Rapids, Iowa, will begin the construction of a one-story addition to its electric power plant at North Sixth Street and Dewey Avenue, East, 80 x 105 ft., estimated to cost \$55,000.

The Larenson Harvester Co., Davenport, Iowa, manufacturer of agricultural equipment, is considering the construction of a one-story plant, 60 x 205 ft., to cost \$45,000.

David S. Klafner, 64 West Randolph Street, Chicago, architect, has completed plans for a five-story and basement automobile service, repair and garage building, 100 x 140 ft., at 925 Kinzie Street, estimated to cost \$250,000 with equipment.

The Common Council, Pickneyville, Ill., will soon ask bids for pumping machinery and other apparatus for installation at the municipal waterworks, estimated to cost \$50,000. A. H. Beard, Title Guaranty Building, St. Louis, is engineer.

Manual training equipment will be installed in the two-story and basement high school at Grand Island, Neb., for which foundations are in progress, estimated to cost \$350,000. Kirchke & Baker, Ryan Building, are architects.

Buffalo

BUFFALO, Sept. 23.

FIRE, Sept. 14, destroyed a portion of the shops and lumber plant of the Wilson Mills, Winsor Street and the Chadakoin River, Jamestown, N. Y., manufacturer of sash, doors, etc., with loss reported at \$75,000, including equipment. It is planned to rebuild.

Hutchison & Strutz, Cutler Building, Rochester, N. Y., architects, have completed plans for a two-story automobile service, repair and garage building, 60 x 105 ft.

The Tonawanda Power Co., North Tonawanda, N. Y., will make enlargements in its automatic power substation on Robinson Street, with the installation of additional equipment to double the present capacity.

The Norris Concrete Works, Buffalo, is arranging for the establishment of a plant at 73-77 Norris Avenue for the manufacture of concrete and cement blocks, etc. Frank Kurczoba heads the company.

Joseph Miller, Buffalo, plans the construction of a one-story machine and repair shop in connection with an automobile garage and service works at 1831 Niagara Street.

St. Louis

ST. LOUIS, Sept. 23.

E. T. ARCHER & CO., New England Building, Kansas City, Mo., consulting engineers, have been selected by the Common Council, Clinton, Mo., to prepare plans for a municipal electric power plant. C. A. Calvird, Jr., is city clerk.

The Peoples Motor Bus Co., 535 Adelaide Avenue, University City, Mo., has tentative plans for a one and two-story service, repair and garage building, 125 x 150 ft., in the West End district, St. Louis, to cost \$150,000 with equipment. R. W. Meade is president.

The Public Service Co. of Oklahoma, Tulsa, has arranged for a bond issue of \$3,275,000, a portion of the proceeds to be used for the acquisition of other electric properties and for extensions and improvements in power plants and system. Fred W. Insull is president.

The Acme Brick Co., First National Bank Building, Fort Worth, Tex., is planning for extensions in the face brick manufacturing plants of the American Brick & Tile Co., Oklahoma City and Cleveland, Okla., recently pur-

chased. New buildings will be erected and machinery installed at each plant, estimated to cost \$75,000 and \$65,000. R. G. Smith is vice-president and engineer.

The Common Council, St. Joseph, Mo., has called a special election on Nov. 18 to vote bonds for \$300,000 for the construction of a municipal electric light and power plant, for which plans will be prepared by W. K. Seitz, engineer.

The Broad-Wal Garage Co., Planters Building, St. Louis, will begin the construction of a three-story service, repair and garage building, 130 x 175 ft., estimated to cost \$160,000 with equipment.

Manual training equipment will be installed in the new four-story and basement high school to be erected at Forty-eighth and Paseo Streets, Kansas City, Mo., estimated to cost \$1,500,000. It will be built in two units, the first to cost \$850,000, for which bids are expected to be asked on a general contract early in November. Charles A. Smith, Finance Building, is architect; J. A. Brady, Library Building, is mechanical engineer.

The Common Council, Marshfield, Mo., plans the installation of centrifugal pumping equipment at its proposed municipal waterworks, for which plans are being drawn by the Gantt-Baker Engineering Co., First National Bank Building, Oklahoma City, Okla.

The Quapaw Mining Corporation, Quapaw, Okla., operating zinc ore properties in the Davenport section, has plans under way for a new milling plant to cost \$75,000.

Cincinnati

CINCINNATI, Sept. 22.

THOUGH it is generally agreed that machine tool business is increasing, the improvement locally has been small and orders continue for single tools from widely scattered points. Inquiries, however, are more numerous and indications point to a more substantial volume of orders during the next few months. Railroad buying has been rather disappointing, but hope is expressed that with the large purchases of rolling stock there may later develop some orders for machine tool equipment. Buying from automobile industries has also been spotty.

Export business has been light and while there is some talk of pending Japanese buying, the only inquiry from this source is for one or two tools for the plant of the Japanese General Electric Co. The larger electrical manufacturing companies, which have practically been out of the market during the third quarter, are again showing interest, and a small inquiry has been issued by the Westinghouse Electric & Mfg. Co.

The American Seeding Machine Co., Springfield, Ohio, has purchased the Black Hawk manure spreader line formerly manufactured by the D. M. Sechler Implement & Carriage Co., Moline, Ill. Patterns, tools and all equipment used in the manufacture of the spreader have been moved to Springfield and the company will start production at once. F. C. Johnson, president American Seeding Machine Co., states that his company is now engaged in manufacturing products for the South American trade, and reports that prospects for good business this winter and spring are excellent.

The Boyertown Burlal Casket Co., Boyertown, Pa., has purchased the plant of the Ohio Casket Co., Columbus, Ohio, and will operate it as the Western branch of the company. Plans are being completed for enlargement. Walter Stauffer and C. M. Anderson will be in charge of the Columbus plant.

The Worthington Pump & Machinery Corporation has plans under way for an addition to the Laidlaw Works, Cincinnati, bids for which will shortly be asked.

The Eureka Stone Co., Columbus, Ohio, manufacturer of artificial marble and stone, has leased the plant of the Elder-Hendry Foundry Co., and contemplates additions to its equipment. J. R. Duddy is president.

The Common Council, Hohenwald, Tenn., is completing plans for the construction of a municipal hydroelectric generating plant.

Manual training equipment will be installed in the three-story high school to be erected at Marietta, Ohio, estimated to cost \$450,000, for which bids are being asked on a general contract. Garber & Woodward, Union Central Building, Cincinnati, are architects.

The Louisville Petroleum & Refining Co., Inter-Southern Building, Louisville has plans for a new oil refinery on the Ohio River, near the city, with initial capacity of about 1000 bbl. per day, estimated to cost \$500,000 with machinery. W. W. Mitchell is president.

The Peerless Paper Co., Dayton, Ohio, has issued bonds for \$500,000, a portion of the proceeds to be used for extensions and betterments.

The Cumberland Straight Creek Coal Co., Pineville, Ky., is reported to be planning to rebuild its tippie at Logans Switch, recently destroyed by fire with loss of \$100,000, including machinery.

J. R. Hoe & Sons, Inc., Middlesboro, Ky., is inquiring for a second-hand power bending brake to handle 1/4-in. plate, 10 ft. long.

Cleveland

CLEVELAND, Sept. 22.

MACHINE tool manufacturers and dealers report some improvement in single orders and more business in prospect in fair sized lots, although it is uncertain whether the latter will materialize into orders for some time. The Timken Roller Bearing Co., Canton, Ohio, is expected to purchase shortly considerable equipment, mostly grinding machines, because of a change in its method of manufacturing roller bearings. A part of the Timken company's requirements was covered in a list sent out some weeks ago but against which few, if any, purchases have been made. The Fate-Root-Heath Co., Plymouth, Ohio, has purchased several grinding machines.

The General Electric Co. has taken a contract for electrical equipment for the new power house to be erected by Pickands, Mather & Co., Cleveland, in connection with the blast furnace plant of the Toledo Furnace Co. at Toledo, Ohio. This will include one 10,000 kw. turbine, two 1500 kw. generator sets, four 5000 k.v.a. transformers, pump motors and switch board.

The Aetna Rubber Co., Cleveland, has placed a contract with the Hunkin-Conkey Construction Co. for a two-story addition, 34 x 84 ft.

The Carey Machine Co., 5606 Curtis Avenue, Cleveland, will enlarge its plant by the erection of a \$50,000 addition to be used for machine shop and other purposes. It will be of brick, one-story, 90 x 122 ft. Ernest McGeorge, 303 Euclid-Thirtieth Building, is the architect and structural engineer.

The Cleveland Co., Cleveland, publisher of the *Cleveland News and Sunday News-Leader*, is having plans prepared for a new plant at an estimated cost of \$750,000. Monks & Johnson, 99 Chauncy Street, Boston, are the architects and engineers.

The city of Kenmore, Ohio, is having plans prepared for a sewage treatment plant. Don Dowling is the city engineer.

It is reported from Lima, Ohio, that the Ford interests plan large expansion in that city for development of the Detroit, Toledo & Ironton Railroad. Proposed buildings will include a round house and repair shop. It is also stated that the Ford Motor Co. will erect an automobile and tractor assembly plant in Lima.

C. W. Kinsman, Willoughby, Ohio, operating a garage, service and repair shop, is in the market for a lathe, drill press, cylinder reborer machine and machine shop equipment, in connection with a building under construction at a cost of \$60,000.

Detroit

DETROIT, Sept. 22.

GEORGE A. GLOOR, 646 Catherine Street, Detroit, manufacturer of tools, has awarded a general contract to the Austin Co. for two additions on Epworth Avenue, 60 x 130 ft., and 54 x 135 ft., respectively, estimated to cost \$50,000. The contractor also acted as architect and engineer for the work.

Ovens, power equipment, conveying and other machinery will be installed in the addition to be erected by the Cable-Draper Baking Co., 6175 Vermont Street, Detroit, estimated to cost \$65,000.

The R. B. Collis Sprayer Co., 190 Territorial Avenue, Benton Harbor, Mich., has plans for a two-story addition for which bids will soon be asked on a general contract. Homer Harper, Battlement Building, is architect.

The Corunna Brick Co., Corunna, Mich., is arranging to rebuild the portion of its plant recently destroyed by fire with loss estimated at \$100,000, including machinery, power house, etc.

The Bean Spray Pump Co., Lansing, Mich., is planning to increase the capacity of its machine shops and will install additional tools and machinery.

The Detroit Edison Co., Detroit, has tentative plans for the construction of a power dam and hydroelectric generating plant near Delhi, Mich., with initial capacity of 2000 kw. It has work in progress on a 3000-kw. hydroelectric station at French Landing near Belleville, Mich., estimated to cost \$1,000,000.

The Freeman Motor Truck Co., Algonac, Mich., contemplates the establishment of a plant for the manufacture of motor trucks and parts, estimated to cost \$50,000. The Algonac Chamber of Commerce is interested in the project.

Plans have been completed by the Flint Structural Steel Co., Flint, Mich., for a one-story addition, 80 x 100 ft. R. W. Heerlein is vice-president, in charge of operations.

New England

BOSTON, Sept. 22.

A LARGE percentage of the small volume of machine tool business transacted in this market the past week was confined to used equipment. The most important sale included a cylindrical grinder, tool grinder, set of rolls and a Warner & Swasey turret lathe to a Maine shop, the total investment being \$17,000 to \$18,000. New machinery is selling slowly. Even the largest New England machine tool users, financially strong, evince more interest in old than in new tools. None of the inquiries previously mentioned has developed into business, but local dealers feel confident of some orders before the end of September. Small tools are in better demand, but the aggregate weekly bookings are not large.

Work has started on a manufacturing plant on Lincoln Street, Marlboro, Mass. for the Marlboro Wire Goods Co. O. E. Mault, 48 Hamilton Street, Worcester, is the architect.

Conveying equipment is required for a packing plant contemplated by the Cudahy Packing Co., Foster Street, Worcester, Mass. Plans are private. No date has been set for bids to close.

The Worcester Wire Works, Inc., Worcester, Mass., has begun excavations for a two-story, 41 x 145 ft., plant on James and Ludlow Streets. Plans are private.

The city of New Bedford, Mass., has started the erection of a repair shop for its fire department. Chase, Pierce & Chase, Zelts building, New Bedford, are the architects.

Plans are completed for a three-story, 50 x 120 ft., addition to a trade school, Sherwin District, Roxbury. Thomas P. Glynn is chairman of the school commission. McLaughlin & Burr, 88 Tremont Street, Boston, are the architects. Bids will be asked this fall.

The Acme Apparatus Co., 37 Osborn Street, Cambridge, Mass. has awarded contract for a one and three-story, 17 x 66 ft., addition to its enamelling unit and other improvements. Harry M. Ramsay, 184 Boylston Street, Boston, is the architect.

Fletcher Thompson, Inc., 542 Fairfield Street, Bridgeport, Conn., is the architect for a one-story, 122 x 156 ft., service station to be erected on State Street and West Avenue for H. W. Walker, contract for which has been let.

Excavations are in progress for a five-story building, 88 x 95 ft., at 287-93 Columbus Avenue, Boston, for Howard, Clark & Davis, 68 Devonshire Street, to be occupied under lease by the Western Electric Co., 385 Summer Street, as a factory branch and distributing works. The Aberthaw Construction Co., 27 School Street, has the general contract. Monks & Johnson, 99 Chauncy Street, are architects and engineers.

The New London Ship & Engine Co., New London, Conn., will begin the construction of an addition, to be equipped as a steel fabricating works. A new yard crane will be installed and other extensions made to cost approximately \$200,000.

The Twin State Gas & Electric Co., 160 State Street, Boston, is completing plans for a power house at Portsmouth, N. H., estimated to cost \$38,000, to be used for transmission line service.

The National Iron Works, 710 Windsor Street, Hartford, Conn., is arranging for the erection of a new plant to replace its present works recently purchased by the Crane Co., Chicago.

The Biever Motor Co., 1079 Chapel Street, New Haven, Conn., will begin the construction of a one-story service, repair and garage building estimated to cost \$150,000 with equipment.

The Standard Box Co., 23 Gerrish Avenue, Chelsea, Boston, has awarded a general contract to Morris Slotnick, Bos-

ton, for a three-story addition, 50 x 100 ft., to cost about \$75,000. S. S. Eisenberg, 46 Cornhill Street, is architect.

The Wickwire-Spencer Steel Corporation, Clinton, Mass., is arranging for enlargements at its local plant and will remove considerable equipment from one of its Worcester works, with additional machinery. Production will be entirely wire cloth, particularly that to be given zinc treatment.

Indiana

INDIANAPOLIS, Sept. 22.

THE Indiana Electric Corporation, Indianapolis, has applied for permission to issue bonds and stock in an amount of \$2,833,000, the proceeds to be used in connection with the new super-power electric generating plant near Dresser, vicinity of Terre Haute, Ind., for which preliminary work is in progress.

The Indiana Rolling Mills Co., Newcastle, Ind., has preliminary plans for a one-story addition to cost \$65,000.

The Board of Trustees, Elkhart County Infirmary, Elkhart, Ind., has plans for a new power house at the institution, in connection with other expansion, to include the installation of vertical and horizontal boilers and accessories, water-softening plant, 100-ft. radial brick stack, steel tower and water tank of 25,000 gal. capacity, and miscellaneous equipment. Herbert Miller, Monger Building, Elkhart, is architect.

The Board of School Trustees, Frankfort, Ind., is considering the installation of a manual training department in its proposed joint high and elementary school, estimated to cost \$100,000, for which bids will be asked at once on general contract. Rodney W. Leonard, Peoples Life Building, Frankfort, is architect.

The Courthouse Garage Co., Indianapolis, recently organized, has leased the former building of the Coffin-Dodson Auto. Co., 326-36 East Market Street, one-story, 100 x 195 ft., and will take immediate possession. A service and repair shop will be established. Ora Powell is secretary and treasurer.

Milwaukee

MILWAUKEE, Sept. 22.

SIGNS of improving business continue. Industrial employment is increasing and orders received by foundries and machine shops are larger. Machine-tool trade is not yet noticeably active, but there is better inquiry. Automotive industries are the most interested in new equipment, although purchases are confined to urgent needs.

The Gold Medal Camp Furniture Co., Racine, Wis., is awarding contracts for a \$30,000 addition, 60 x 150 ft., two and three stories, to be used for manufacturing and storage. The architect is D. R. Davis, Racine. C. C. Gittings is general manager.

The Charles A. Krause Milling Co., Milwaukee, is planning to rebuild its corn products plant, elevator, power house and other buildings damaged by fire Sept. 2 with a loss of \$1,250,000, which is covered by insurance. Practically a full complement of new power plant, mill and elevator equipment is required. The plant and offices are at Thirty-seventh Avenue and Burnham Street. Charles A. Krause is president.

The Modine Mfg. Co., Racine, Wis., manufacturer of automobile and truck radiators, is erecting a \$50,000 addition and is buying considerable new equipment. Among orders booked is one for 100,000 radiators for the Ford Motor Co., Detroit. The new Ajax Motors Co. of Racine, a Nash interest, also is said to be negotiating for the greater part of its supply of radiators.

Morris Miller and Nathan Rosenberg, Green Bay, Wis., have purchased from the receivers the plant and property of the J. F. Davis Sons Co., Chicago, at DePere, Wis., consisting of a structural and boiler works, machine shop, etc. The new owners plan to resume operation in about 30 days with a force of 40 to 50 men. The Davis works originally were known as the Lyons Boiler Works and later as the DePere Mfg. Co.

The Kenosha, Wis., city manager has let contract to L. L. Klemm, local builder, for erecting the new municipal garage and repair shop, 50 x 150 ft., one-story and part basement. With equipment, to be purchased shortly, the project involves about \$35,000. C. M. Osborn is city manager.

The George J. Meyer Mfg. Co., 576 Clinton Street, Milwaukee, manufacturer of bottling machinery and special equipment, which has under construction a new brass foundry, 50 x 75 ft., at 535-537 Barclay Street, will also build a general manufacturing addition, 80 x 100 ft., at 526-530 Clinton Street. Approximately \$65,000 will be invested in

the new buildings and machinery. George J. Meyer is president and treasurer.

The Finkler Motor Car Co., 924-926 Third Street, Milwaukee, will build an additional story, 40 x 60 x 100 ft., to its garage and service building. Some new and used tools will be installed.

The E. D. Fahlberg Mfg. Co., Madison, Wis., has been organized with \$10,000 capital stock by E. D. Fahlberg, J. H. Mathews and Victor Kelley to manufacture metal products. Quarters will be leased and equipped at once.

The Madison, Wis., Board of Education has accepted the bid of the Immel Construction Co., Fond du Lac, Wis., at \$234,483, for the general work of erecting an addition to the East Side high school, to cost about \$400,000 complete. It will contain manual training class rooms and shops, auditorium and gymnasium. H. W. Pickford is secretary of the board.

The La Crosse, Wis., Refrigerator Corporation, organized recently to take over the plant and other property of the defunct Mathews Mfg. Co. at La Crosse, is inquiring for new wood and metal-working equipment, enameling machinery, etc., both for replacements and to increase the capacity. Jacob Samuels is president and general manager.

Pittsburgh

PITTSBURGH, Sept. 22.

THE market has been enlivened by the placing of about a dozen tools by the Universal Portland Cement Co. for its plant at Universal, Pa. This inquiry has been pending since the early part of the year. The Carnegie Steel Co. has issued a new list, including about a dozen items for the machine shop at its Homestead works. Several of the tools were put out earlier this year, only a few of which were ordered. In a general way new inquiries were less last week than in the one previous and since the most important have been closed, there is a belief that a quiet period is ahead as far as orders are concerned.

Activity is lacking in cranes. Rolling mill makers continue to get some business. The Wisconsin Steel Co. has ordered a 40-in. blooming mill with all auxiliary equipment and the Carnegie Steel Co. has awarded a 28-32-in. structural mill for its Homestead works.

Contract has been let by the Kier Fire Brick Co., Oliver Building, Pittsburgh, to the H. K. Ferguson Co., Euclid Avenue, Cleveland, for a one-story addition to its plant at Salina, Pa., 50 x 150 ft., to cost \$50,000.

Andrew M. Motter, Pittsburgh, has leased the two-story building at 5518-20 Walnut Street, Shadyside district, 70 x 140 ft., for the establishment of an automobile service, repair and garage building. Improvements will be made and equipment installed.

H. S. Albert, Mercer, Pa., operating a plant for the manufacture of automotive tools, is planning for the erection of an addition and the installation of equipment.

The Raymond Mfg. Co., Church and Center Streets, Corry, Pa., manufacturer of steel springs, etc., has awarded a general contract to E. E. Austin & Son, Commerce Building, Erie, Pa., for a two-story and basement addition, 60 x 97 ft., to cost approximately \$30,000. A. P. Mount & Son, Cameron Building, are architects.

The Guyan Machine Shops, Logan, W. Va., machinery dealer, has inquiries out for a 15-ton arbor press, a 125 hp. motor, induction type, three-phase, 60-cycle, 2300 volts, with base, pulley, starter etc.

Manual training equipment will be installed in the two-story and basement high school to be erected at Avalon, Pa., estimated to cost \$180,000, for which it will soon ask bids on a general contract. J. H. Phillips, P. O. Box 977, Pittsburgh, is architect.

The Common Council, Rivesville, W. Va., is said to be planning for the installation of electric pumping equipment in connection with extensions and improvements in its water and sewage systems, for which bonds for \$50,000 have been approved.

The Common Council, Sharpsburg, Pa., is considering a bond issue of \$50,000 in connection with other appropriations, the proceeds to be used for the purchase of electric pumping equipment, boilers, engine and accessory apparatus for the municipal waterworks.

The Fitzsimmons & Cole Machinery Co., 1208 House Building, Pittsburgh, is in the market for the following: A 500 to 800-ton steam hydraulic forging press; a plate shear of 14 ft. x $\frac{1}{8}$ in. capacity and one of 6 ft. x $\frac{3}{8}$ in. capacity.

The Ben Franklin Coal Co. of West Virginia, Park Building, Pittsburgh, is contemplating the construction of a new plant at Moundsville, W. Va., for the manufacture of coal briquettes, with initial unit to cost \$80,000 with machinery.

South Atlantic States

BALTIMORE, Sept. 23.

D. C. ELPHINSTONE, INC., 408 Continental Building, Baltimore, machinery dealer, has inquiries out for a number of dump cars, 30-in. gage, 1 to 2 $\frac{1}{2}$ yd. capacity.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until Sept. 30 for one motor-generator set for the Puget Sound Navy Yard, schedule 2658; for 15,000 lb. pig lead for the Norfolk yard, schedule 2690; for 100,000 ft. steel aircraft cable for Mare Island, schedule 2683, and until Oct. 14 for two portable sectional steel buildings for Mare Island, schedule 2684.

The Hillside Cotton Mills Co., La Grange, Ga., is planning the construction of a new central power plant at its textile mills, estimated to cost \$45,000 with equipment.

Fire, Sept. 9, destroyed a portion of the plant of the Henderson Foundry & Machine Works, Hampton, Ga., with loss estimated at \$80,000.

The Pine Hall Brick Co., Winston-Salem, N. C., will make extensions in its plant in the Pine Hall section, including the installation of additional machinery and power equipment to double the output from 30,000 to 60,000 brick per day. Headquarters of the company are in the Merchants Bank Building. John D. Spinks, Wachovia Bank Building, is architect.

R. M. Cooksey, Thomasville, N. C., city manager, will take bids until Oct. 1 for equipment for a new waterworks station on Abbotts Creek, including electric pumping machinery and accessories, filter apparatus, purification machinery, etc. W. C. Olsen, Raleigh, N. C., is engineer.

The Reed & Fibre Products Co., 7 East Pratt Street, Baltimore, manufacturer of children's vehicles and parts, is arranging for the erection of a new one-story plant totaling about 30,000 sq. ft. of floor space, to cost about \$60,000.

The Board of Awards, office of the City Registrar, City Hall, Baltimore, will receive bids until Oct. 1 for one 250-kw. electric generator and accessory equipment for installation in the power house at the Bay View Hospital. C. H. Osborne, inspector of buildings, is in charge.

The general purchasing officer, Panama Canal, Washington, will take bids until Oct. 9 for boiler tubes, pipe, sewage pumps, welding wire, electrode holders, bar cutters, dies, chain, metal furniture and other equipment, circular 1631.

The Board of Aldermen, Rocky Mount, N. C., will receive bids until Oct. 8 for a municipal power plant. William C. Olsen, Raleigh, N. C., is consulting engineer.

R. P. Johnson, Wytheville, Va., has inquiries out for a vertical baling press, power operated, to bale material about 3 ft. square, when compressed; also for a 50-hp. vertical boiler, complete with accessories.

Stevens, Inc., 101 Marietta Street, Atlanta, Ga., is in the market for a steam shovel, about $\frac{1}{4}$ -yd. capacity.

The Wilson-Hock Co., City Point, Va., machinery dealer, is in the market for a locomotive for mine service, 36-in. gage, 5 to 6-tons, for cable gathering on reel; also for a 150-kva. generator, belted type, three-phase, 60 cycles, 2300 volts; a motor-generator set, 100-kw. capacity, 220 volts, 1200 r.p.m.; several electric motors, 15 to 150-hp., three-phase, 60-cycle, 550 volts, with starting equipment, adjustable bases, pulleys, etc.; also motors from 3 to 15-hp., three-phase, 60-cycle, 220 volts, complete with bases, starting apparatus, etc.

Ottenheimer Brothers, Inc., 415 North Howard Street, Baltimore, manufacturer of refrigerators, refrigerating equipment, etc., has taken title to the factory and entire block of property bounded by Hill, Front, Bath and Falls-way Streets for \$105,000. The new owner has been occupying the plant under lease and plans are under way for extensions and installation of additional equipment.

A steam power plant, pumping station and other departments will be installed at the local artificial gas plant of the West Virginia & Maryland Gas Co., Cumberland, Md., for which plans soon will be arranged. The project will be carried out in conjunction with the Southern Gas & Power Co., Bluefield, W. Va., and is estimated to involve about \$500,000 including machinery.

The Common Council, Buie's Creek, N. C., has plans under way for the installation of a municipal electric light and power plant. An appropriation has been arranged.

Clark & Sorrell, Durham, N. C., have arranged for the erection of a three-story automobile service, repair and

garage building, 55 x 100 ft., to cost \$40,000 with equipment. Contract has been let to the Wilkerson Construction Co., Gler Building.

The Common Council, Aulander, N. C., plans the installation of centrifugal pumping equipment in connection with the proposed municipal waterworks and sewage system, for which bonds for \$95,000 have been approved.

The Inman Builders' Supply Co., Inman, S. C., is planning the purchase of woodworking equipment for the manufacture of sash, doors, etc. A department will also be equipped for cabinet working.

The Mack International Truck Corporation, Spring and Hunnicutt Streets, Atlanta, Ga., with main plant at Plainfield, N. J., has awarded a general contract to the Griffin Construction Co., Candler Building, for a local factory branch and service building estimated to cost \$75,000.

The Fretwell Safety (Locked) Razor Corporation, Danville, Va., incorporated with capital stock of \$1,000,000 to manufacture as indicated, plans to locate at Richmond, Va., where it will establish a plant. Julian W. Fretwell, secretary-treasurer Merchants Supply Co., Danville, heads the new company.

Fire, Sept. 2, destroyed a portion of the plant of the International Agricultural Corporation, Arkwright, S. C., manufacturer of fertilizer products, with loss estimated at \$100,000, including machinery. Plans for rebuilding are under consideration.

The Seaboard Feldspar Co., Baltimore, recently organized, will take over the plant of the Product Operating Co., Equitable Building, in the Claremont district. Plans are under way for enlargements, with the installation of grinding and other machinery to cost \$50,000.

Canada

TORONTO, Sept. 22.

SELLING interests report a continued demand for machine tools with sales the past week showing a slight improvement over those of previous weeks. Inquiries are fairly numerous and of a diversified nature, covering practically every line of industrial activity of the Dominion. Buying is mostly for one or two tools but lists for a half dozen are making their appearance from time to time. Generally speaking, machinery builders are active, several stating they have sufficient business booked to keep their plants in operation for almost a year.

The Auto Specialties Mfg. Co., Windsor, Ont., which is building a \$15,000 addition to its plant is asking for equipment, including stamps, dies, polishing machinery and metal working tools.

Gamble Brothers, Carp, Ont., are in the market for equipment for a garage and repair shop including lathe, drill press, etc.

Kelly & Graham, Renfrew, Ont., are asking for a lathe, drill press and other tools for a repair shop.

The Robervale Foundry, Robervale, Que., was destroyed by fire with a loss estimated at \$10,000. It is expected that the foundry will be rebuilt and new equipment purchased.

The power plant owned by the Maritime Electric Co., St. Stephen, N. B., was destroyed by fire Sept. 10, with a loss of \$200,000. It will be rebuilt immediately.

The entire plant and the foundations of the Port Neuf Hydraulic Co., Port Neuf, near Three Rivers, Que., were destroyed by an overflow of the St. Anne River.

The Utilities Board, London, Ont., proposes to equip a pumping station in East London to draw water from wells. W. P. Near is engineer.

The North Western Elevator Co., Ltd., Port William, Ont., is receiving bids (no closing date set) for rebuilding the grain elevator, workhouse, etc., to cost \$90,000.

The Port Alfred Pulp & Paper Corporation, is having plans prepared for the erection of paper mill in the Province of Quebec. R. O. Swezey, care of Newman, Swezey & Co., Ltd., 135 St. James Street, Montreal, is president.

J. Hunt Stanford & Son, 67 Yonge Street, Arcade, Toronto, are preparing plans for a garage to cost \$150,000 for which equipment will be required.

The Bedford Machine Tool Co., 166 Bedford Road, Toronto, has purchased the building of the Mahaffey Iron Works, 145 Kendal Avenue. The property consists of a two-story brick building, 40 x 60 ft., on a lot 100 ft. sq. The new owners will immediately remove its machinery to the new building, and the Mahaffey Iron Works is looking for larger quarters.

The B. C. Valve Co., Ltd., 514 Standard Bank Building, Vancouver, B. C., will build an addition.

Pacific Coast

SAN FRANCISCO, Sept. 17.

FOLLOWING the recent merger of the West Coast Iron & Steel Works, Portland, and the Steel Tank & Pipe Co., Berkeley, Cal., under the name of the Steel Tank & Pipe Co. of Oregon, Inc., plans are being completed for new works in the Portland district where a 15-acre site has been secured. A number of one-story units will be erected, with power house, to cost approximately \$400,000 with machinery. F. W. Small is general manager.

The Diamond Patent Showcase Co., Inc., 1625 Mission Street, San Francisco, is having plans drawn for a one-story factory to cost about \$45,000 with equipment. James P. Shaffer, 337 Mission Street, is architect.

The Pacific Coast Steel Co., Alaska Building, Seattle, will begin the construction of an addition to its plant at 4001 Twenty-eighth Street, Southwest, estimated to cost \$50,000.

The Puget Sound Power & Light Co., Seattle, is disposing of a bond issue of \$5,000,000, a portion of the proceeds to be used for extensions and improvements, including new hydroelectric generating plant development. Frederick S. Pratt is chairman of the board.

The Pacific Electric Mfg. Co., 327 Folsom Street, San Francisco, manufacturer of electrical equipment, has tentative plans for a new factory, estimated to cost \$50,000 with machinery.

The Consolidated Minerals Corporation, Tujunga, Cal., has acquired additional properties in the Little Tujunga Canyon, with extensive raw material deposits, and contemplates erecting a new cement mill and lime plant, with power house, machine shop and auxiliary buildings, to cost \$350,000 with equipment. A silica mill is also projected. Frank J. Buck is production manager.

The Oregon-Washington Railroad & Navigation Co., Portland, is considering the construction of a one-story steam-operated power plant at Huntington, Ore., to cost approximately \$25,000.

The Premier Bed & Spring Co., 2401 Seventeenth Street, San Francisco, manufacturer of metal beds, springs, etc., is having plans drawn for a new factory at Berkeley, Cal., two stories, estimated to cost \$15,000 with machinery. O'Brien Brothers, 315 Montgomery Street, are architects.

The Washington Veneer Co., Olympia, Wash., has awarded a general contract to Christopher Kuppler & Sons, 1203 Seventh Avenue, North, Seattle, for a new plant with power house, estimated to cost \$100,000. Joseph H. Wohleb, Olympia, is architect.

Fire, Sept. 15, destroyed a portion of the oil storage and distributing plant of the Associated Oil Co., Monterey, Cal., and similar works of the Standard Oil Co. of California, on adjoining tract, with loss estimated in excess of \$700,000, divided between the two companies.

The Wickersham Light & Power Co., Wickersham, Wash., has preliminary plans for a one-story steam-operated electric power house for commercial light and power service.

Gulf States

BIRMINGHAM, Sept. 22.

R. W. PORTER, Blackwell, Okla., and associates, have preliminary plans for the construction of an electric light and power house and ice-manufacturing plant at Crowell, Tex., estimated to cost \$100,000 with equipment.

The Lubbock Cotton Oil Co., Lubbock, Tex., will begin the erection of a one-story cottonseed oil mill, estimated to cost \$65,000 including equipment.

The Standard Gas Products Co. of Alabama, Birmingham, operating at its recently completed local plant for the manufacture of commercial oxygen, contemplates the erection of a new unit for the production of acetylene gas for industrial purposes to cost approximately \$75,000. P. W. Wilcox is manager.

The McClellan Switch Co., Inc. Heidelberg, Miss., recently organized, is planning to contract for the manufacture of a line of railroad specialties including boltless lock rail joints, frogless switches, etc., and has no plans at present for a factory of its own. William D. M. McClellan, president, desires to get in touch with manufacturers in position to handle this line of production.

W. H. Dexter, P. O. Box 665, Jacksonville, Fla., machinery dealer, has inquiries out for a caterpillar shovel, about ½-yd. capacity, driven either with steam or gasoline engine, or Diesel unit.

The Board of Education, Houston, Tex., has tentative plans for the construction of a one-story unit at the Edgar Allen Poe junior high school for manual training work.

The Imperial Sugar Co., Sugarland, Tex., recently char-

tered with a capital of \$5,000,000, will take over the local refinery of the Sugarland Industries, Inc. Plans are under way for additions and improvements, with the installation of machinery estimated to cost \$1,200,000. W. T. Eldridge and G. D. Ulrich, Sugarland, are officials of the new company.

The Common Council, Ralls, Tex., plans the installation of centrifugal pumping equipment in connection with its proposed municipal waterworks, estimated to cost \$50,000. Montgomery & Ward, City National Bank Building, Wichita Falls, Tex., are engineers.

O'Neals Lime Works, Birmingham, has preliminary plans for a new plant near Calera, Ala., to cost about \$90,000 with kilns and other equipment. Machinery will also be installed for limestone quarrying.

The C. & E. Electric Co., St. Petersburg, Fla., will proceed with the construction of a one-story automobile service, repair and garage building at Second Street and Second Avenue, estimated to cost \$125,000 including equipment.

The Southwestern Power & Light Co., Fort Worth, Tex., has arranged for an additional bond issue of \$3,500,000, a portion of the proceeds to be used for extensions in power plants and system. A. S. Grenier is president.

The City Council, Trinity, Tex., plans the installation of centrifugal pumping equipment in connection with extensions in the municipal waterworks, for which a bond issue of \$75,000 is being arranged. F. J. Zuben, Ellison Building, Fort Worth, Tex., is engineer.

The Shaw Ice & Coal Co., Shaw, Miss., recently organized, has acquired a local site for the erection of a

new ice-manufacturing plant, for which equipment soon will be purchased. Uriah Ray, Ruleville, Miss., is head of the company.

The Imperial Petroleum Corporation, Tampa, Fla., is completing plans for a new oil storage and distributing plant in the Hooker's Point district, estimated to cost \$200,000 with equipment.

The Longview Ice Co., Longview, Tex., recently organized with a capital of \$175,000, has preliminary plans for an ice-manufacturing plant estimated to cost \$80,000 with machinery. J. C. Kennedy and L. R. Williams, Longview, head the company.

The Liberty Battery Mfg. Co., Baton Rouge, La., organized with capital stock of \$30,000, will manufacture batteries, plates and boxes for lighting plants. It will purchase a site, erect buildings and install equipment. No contracts have yet been made. J. H. McLean is president and general manager.

H. P. Smith, National Bank of Commerce Building, San Antonio, Tex., architect and engineer, is preparing plans and specifications for a power and heating plant at Carroll College, McAllen, Tex., to cost \$50,000 for which equipment will be required.

The Pemberton Carbon Cleaning Machine Co., Gainesville, Fla., formed with authorized capital of \$200,000 to manufacture carbon removing apparatus, will contract the work on various parts, if this proves satisfactory. The parts consist of a high speed motor with shaft projecting for pulley for countershaft which will run a flexible shaft 6 ft. long. Tubing $\frac{3}{8}$ to $\frac{1}{2}$ -in. in diameter will be used. Bids will be asked later. W. E. Baker is secretary-treasurer.

STEEL AND INDUSTRIAL STOCKS

The range in prices of active steel and industrial stocks from Monday of last week to Monday of this week was as follows:

	Low	High		Low	High
Allis-Chalmers ..	60	62 $\frac{3}{4}$	Inland Steel ...	35 $\frac{1}{2}$	35 $\frac{1}{2}$
Allis-Chal. pf. ...	100 $\frac{1}{2}$	100 $\frac{1}{2}$	Int. Har.	92 $\frac{1}{2}$	98
Am. B. S. & Fdy. ..	84	85	Lima Loco.	60 $\frac{1}{2}$	61 $\frac{1}{2}$
Am. Can.	125 $\frac{1}{2}$	131 $\frac{1}{2}$	Nat. Acme.	5 $\frac{1}{2}$	5 $\frac{1}{2}$
Am. Can. pf.	114	115 $\frac{1}{2}$	Nat. En. & Stn. ..	20 $\frac{1}{2}$	24
Am. Car. & Fdy. ..	162 $\frac{1}{2}$	167	Nat. En. & S. pf. ..	67 $\frac{1}{2}$	70
Am. C. & F. pf. ...	119 $\frac{1}{2}$	121 $\frac{1}{2}$	N. Y. Air Brake ..	41 $\frac{1}{2}$	42 $\frac{3}{4}$
Am. Locomotive. ..	78 $\frac{1}{2}$	80 $\frac{3}{4}$	Otis Steel.	7 $\frac{1}{2}$	7 $\frac{1}{2}$
Am. Loco. pf.	120	120 $\frac{1}{2}$	Otis Steel pf.	48	48
Am. Radiator.	115 $\frac{1}{2}$	119	Pressed Stl. Car. ..	46	46 $\frac{1}{2}$
Am. Radiator pf. ..	123	123	Pressed Steel pf. ..	73 $\frac{1}{2}$	73 $\frac{1}{2}$
Am. Steel Fdries. ..	36 $\frac{1}{2}$	37 $\frac{1}{2}$	Replogle Steel.	10 $\frac{1}{2}$	12
Am. Stl. Fd.	104 $\frac{1}{2}$	106	Republic.	46 $\frac{1}{2}$	49
Bald. Loco.	119 $\frac{1}{2}$	123 $\frac{1}{2}$	Sloss-Sheffield.	71	74 $\frac{1}{2}$
Bald. Loco. pf. ...	114	114 $\frac{1}{2}$	Sloss-Sheffield pf. ..	91 $\frac{1}{2}$	91 $\frac{1}{2}$
Beth. Steel.	43 $\frac{1}{2}$	45 $\frac{1}{2}$	Transue-Wms.	31	31
Beth. Stl. 7% pf. ..	92 $\frac{1}{2}$	92 $\frac{1}{2}$	Un. Alloy Steel.	23	23 $\frac{1}{2}$
Beth. Stl. 8% pf. ...	106 $\frac{1}{2}$	106 $\frac{1}{2}$	U. S. Pipe.	102 $\frac{1}{2}$	109 $\frac{1}{2}$
Chic. Pneu. Tool.	86 $\frac{1}{2}$	86 $\frac{1}{2}$	U. S. Pipe pf.	95	95
Colo. Fuel.	38 $\frac{1}{2}$	45 $\frac{1}{2}$	U. S. Steel.	106 $\frac{1}{2}$	109 $\frac{1}{2}$
Crucible Steel.	51	58 $\frac{1}{2}$	U. S. Steel pf.	121 $\frac{1}{2}$	122 $\frac{1}{2}$
Crucible Stl. pf. ...	88 $\frac{1}{2}$	90 $\frac{1}{2}$	Vanadium Steel.	25 $\frac{1}{2}$	27 $\frac{1}{2}$
Deere, pf.	73	73	Va. I., C. & Coke ..	37 $\frac{1}{2}$	37 $\frac{1}{2}$
Gen. Electric.	254 $\frac{1}{2}$	265 $\frac{1}{2}$	W'house Air Br.	93 $\frac{1}{2}$	94 $\frac{1}{2}$
Gt. No. Ore Cert. ..	28 $\frac{1}{2}$	29 $\frac{1}{2}$	Y'gstown S. & T.	67 $\frac{1}{2}$	68
Gulf States Steel ..	71 $\frac{1}{2}$	75 $\frac{1}{2}$			

Affairs of St. Louis Coke & Iron Co.

James Duncan, receiver of the St. Louis Coke & Iron Co., St. Louis, has appointed W. G. Maguire, former president, as general manager of the company. Reorganization of the company must be prefaced by raising new capital, amounting to \$3,500,000, according to a statement issued by Mr. Maguire. No great difficulty is anticipated, he asserted, as the plant had proved it could operate successfully. Its handicap, however, has been insufficient blast furnace capacity in proportion to the coke output. The 80 coke ovens are capable of producing 1500 tons of coke per day, more than enough to operate three blast furnaces instead of the one stack thus far erected. The company needs another blast furnace which would cost approximately \$2,000,000. That amount together with \$1,500,000 of working capital would establish the company on a sound basis. A new power plant, or an addition to the present one, is also contemplated. The company has no unsold pig iron, but unsold stocks of coke amount to 105,000 tons. This accumulation is attributable to the sustained depression in the fuel market.

Plans of A. M. Castle & Co.

The purchase by A. M. Castle & Co., Chicago, of the Berger & Carter Co., San Francisco, was announced in THE IRON AGE of Sept. 18. The Berger & Carter organization

will be retained under the name of A. M. Castle & Co., and R. L. Sanford, vice-president of the San Francisco company and for the past 17 years San Francisco representative of A. M. Castle & Co., will continue active in the management. The present warehouse of the Berger & Carter Co. at Seventeenth and Mississippi Streets, San Francisco, will be retained while plans are being perfected for the purchase of a large tract of land upon which will be erected a thoroughly modern steel warehouse. A. M. Castle & Co. also have the largest warehouse and jobbing business in Seattle, Wash., having taken over the Western Hardware & Metal Co. in 1918. At Chicago it owns approximately eight acres within two miles of the loop district, having more than a quarter mile of river frontage and six spur tracks from the Chicago, Milwaukee & St. Paul Railway. The Castle company was originally established in 1890 with a capital of \$100,000, which has steadily grown, until now the assets are several million dollars.

Industrial Notes

The Buckeye Steel Casting Co., Columbus, Ohio, has put into operation a new normalizing furnace of the refractory tile recuperative type. It has a capacity of 180 tons of castings per 24 hr. The furnace is operating on oil, but is also fitted to use gas. The Chapman-Stein Furnace Co., Mt. Vernon, Ohio, was the designer and contractor.

The Jones & Laughlin Steel Corporation has placed an order for four mechanical gas producers with the Chapman Engineering Co., Mt. Vernon, Ohio, to be installed at the Woodlawn, Pa., plant.

The J. F. Buhr Machine Tool Co., Detroit, has made arrangements with Jacques Vleijra, 24 Rue De Lubec, Paris, to manufacture Buhr multiple drillers, tappers and multiple head presses for European consumption. Mr. Buhr reports that one of the "automobile companies in France is now turning out 250 cars daily, which is an unheard of production for any plant in Europe." This presages a good market for labor-saving tools in France especially. Owing to the present rate of exchange, tool exporting from the United States is practically nil.

William Jessop & Sons, Ltd., Sheffield, England, has disposed of its entire holdings in the Jessop Steel Co., Washington, Pa. The Jessop company, Washington, will continue to manufacture Jessop steel, but has no further connection with the original Jessop company. Stock of the Jessop Steel Co. is entirely held by American capital.

A new corporation has been formed representing a capitalization of \$6,000,000 as the consolidation of the Charles B. Bohn Foundry Co. and the General Aluminum & Brass Mfg. Co., 50 Church Street, New York. It is provided in the merger plan that Charles B. Bohn will become president of the new company. He is to be assisted by members of both organizations. Leo M. Butzel is added to the board of directors.

Plans of New Companies

The Parmanenta Corporation, New York, has been incorporated with \$300,000 capital stock to manufacture radio broadcasting equipment. Experimental work has been completed and plans are under way for starting operations as soon as possible. Address in care of Mr. Vance, Barrone, Rice & Rockmore, 220 West Forty-second Street.

The Limpert Ice Machine Corporation, Clinton Street, Bayshore, L. I., recently incorporated with \$250,000 capital stock to manufacture ice and refrigerating machinery, has successfully completed the building of its first machine and has opened negotiations for plant and equipment. S. A. Limpert heads the company.

The Porter Hardware Corporation, 2660 Eighth Avenue, New York, incorporated with \$35,000 capital stock, will conduct a business as distributor of hardware products.

The Illuminated Arrow Co., New York, has been incorporated with \$100,000 capital stock to manufacture electrical equipment. Plans for manufacturing have not yet been formulated, nor has it been determined whether the work will be done by contract or by the company. Temporary address is in care of S. R. Gerstein, 299 Broadway.

The Faurot Lock Co., care of Samuel Wechsler, 150 Nassau Street, New York, recently incorporated with \$1,000,000 capital stock to manufacture locks, is developing plans to undertake manufacturing at some later time.

The Superior Sign Corporation, 16 Snyder Street, Brooklyn, has been incorporated with \$50,000 capital stock to manufacture electric signs and displays. Its chief product will be a new design of electric display. It has factory and equipment and plans to start operations next week.

The Primoset Co., New York, recently incorporated with \$50,000 capital stock to manufacture mechanical equipment, will not go forward with operating plans for several months. H. D. W. Oldham is one of the principals. Address in care of H. S. Neiman, 233 Broadway.

White & Shauger, 450-70 Straight Street, Paterson, N. J., recently incorporated, will continue the business by that name formerly conducted at 435 Straight Street, handling plumbing and heating supplies, also brass specialties, water pipe and soil pipe. The company has bought the plumbing supply building of the bankrupt McNab & Harlin Mfg. Co., on which extensive alterations have been made. H. Demarest heads the company.

The Miller Glass Engineering Co., Swissvale, Pa., has been organized with \$100,000 capital stock to manufacture glass making machinery, but for the time being activities will be confined to acting as selling agent in this line.

Trade Changes

H. D. Rohman of the R. C. S. Equipment Co., 8 East Forty-first Street, New York, has taken over the agency of the Electric Arc Cutting & Welding Co., for Tapered electrodes on the Interstate Steam Railways.

The E. B. Leaf Co., dealer in iron and steel, has moved its office from the Hudson Terminal Building to the Knickerbocker Building, 152 West Forty-second Street, New York.

General offices of the American Electric Switch Co. have been moved from Canton to Minerva, Ohio. Several new products have been added to its line in the way of entrance switches.

The De Remer-Blatchford Co., 747 Railway Exchange Building, Chicago, has been appointed direct mill representative for the Lockhart Iron & Steel Co., Pittsburgh, manufacturer of iron bars.

The Fitchburg Machine Works, Fitchburg, Mass., will consolidate with the Seneca Falls Machine Co., Seneca Falls, N. Y. The Fitchburg equipment will be moved to Seneca Falls about Jan. 1. The Fitchburg company began business in 1866, as a reorganization of the original Fitchburg Machine Co. The officers are Marcus A. Coolidge, president, who became identified with the organization in 1900; E. R. Smith, vice-president; J. A. Fyle, secretary; Lowell H. Stearns, treasurer. The companies have been under practically the same management for several years and turn out non-conflicting products. The Seneca company operates a foundry. The Fitchburg company previously bought its castings from independent concerns.

The Gibb Instrument Co., Bay City, Mich., has appointed F. J. DeLima as agent for the sale of electric welding and electric heating machines in Canada. Mr. DeLima's headquarters are in the Keefer Building, Montreal.

The Colonial Motor Coach Corporation, New Haven, Conn., has been incorporated with \$4,500,000 capital stock, Delaware laws, to manufacture automobile buses. Detailed information is not available at this time. R. K. Munchey, Pierce, Carroll & Co., 177 Church Street, is treasurer.

The Barnes Zinc Products Co., 900 Blackhawk Street, Chicago, recently incorporated with \$300,000 capital stock, has acquired 90,000 sq. ft. of land with private switch on the Chicago, Milwaukee & St. Paul Railroad. The first unit of its buildings will contain about 50,000 sq. ft. of floor space. It will manufacture conductor pipe, eaves trough elbows and fittings of zinc copper and galvanized steel. W. M. Sawyer, formerly assistant manager of the Wheeling Corrugating Co., Chicago, will be general manager.

The United States Toy Co., 337 South Tenth Street, Newark, N. J., has been organized with \$100,000 capital stock with William C. Shapiro as president and William F. Dester as secretary. It will add to its line later and plans eventually to manufacture tools and dies. Floor space and machinery have been rented for immediate needs. Raw material requirements include sheet steel and black plate.

The Vulcan Motor Axle Corporation, Detroit, has been incorporated as a reorganization under Michigan laws of the Virginia corporation by that name. Office and factory are located at 7381 Conant Street, Detroit, and the company makes axles for motor vehicles. F. C. Gilbert is president-treasurer; Sidney C. Love, vice-president, and John T. Hanlon, secretary.

The National Foundry & Machine Co., Wiser Avenue, Worcester, Mass., has been organized to operate a general foundry and machine works, manufacturing chilled cast iron drawing dies. Property has been leased at the above address. J. G. Enberg is president.

The Economy License Plate Co., Macy, Ind., has been organized to manufacture a permanent license plate for automobiles. Manufacturing will be started at once. F. J. Williams is secretary.

The Appel-Higley Electric Co., 252 Main Street, Dubuque, Iowa, recently incorporated, will act as distributor of electric and radio products, also as contractor in the electrical line. It has taken over an established business. H. W. Higley heads the company.

The Barner Electric Corporation, Kountze, Tex., has been organized to produce electric power and to do sheet metal and punch press work. L. B. Pitre is one of the principals.

The Holmes Metal Box Co., 5439 North American Street, Philadelphia, has been incorporated with capital stock of \$30,000 and will specialize in the manufacture of the larger sizes of metal switchboard and junction boxes used by the electrical trade. It has plant and equipment and is in production.

Jacob Sonnenschein, manufacturers' agent and machinery importer, formerly at 102 East Fifteenth Street, New York, has moved to the Monadnock Building, San Francisco.

The Lakin Allen Electric Co., 448 East Larned Street, Detroit, has moved to Fort and Fourth Streets, that city.

The following agents have been appointed by the Homestead Valve Mfg. Co., Homestead, Pa. These firms will handle a full line of Homestead products: The Hughes Co., Spokane, Wash.; W. A. Case & Sons, Rochester, N. Y.; Smith & Pearson, Auburn, N. Y.; W. H. Klefaber Co., Dayton, Ohio; Doermann-Rocher Co., Cincinnati; James McGraw Co., Richmond, Va.; Engineering Sales Co., Ashland, Ky.

The E. A. Lundy Co., Union Trust Building, Pittsburgh, has been appointed exclusive railroad representative throughout the United States for the sale of reinforced switch and fuse clips made by the Reinforced Switch & Mfg. Co., Pittsburgh.

The Woodings Forge & Tool Co., Verona, Pa., has taken over the Valley Forging Co. and will specialize in tools, track and car forgings, etc.

The American Sintering Co., has discontinued the district office at Youngstown, Ohio, and is now located at the plant in Hubbard, Ohio.

The galvanizing business formerly conducted as the Estate of Adolph Starke at 575-83 Columbia Street, Brooklyn, A. L. Starke, proprietor, has been taken over by Mr. Starke's son and will be known as the Adolph Starke Co.

Ernest N. Humphrey, for the past 30 years associated with Traut & Hine Mfg. Co., New Britain, Conn., and vice-president of the company, has purchased the household specialty business of that concern. He proposes to organize a new company to manufacture these products and will sever his connection with the Traut & Hine company Oct. 1. His purchase includes tools, fixtures and machinery. The new company will probably be located in New Britain.

Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

Bars, Shapes and Plates

Bars:	Per Lb.
Refined iron bars, base price	3.24c.
Swedish charcoal iron bars, base....	6.75c. to 7.25c.
Soft steel bars, base price.....	3.24c.
Hoops, base price	4.49c.
Bands, base price	3.99c.
Beams and channels, angles and tees, 3 in. x ¼ in. and larger, base	3.34c.
Channels, angles and tees under 3 in. x ¼ in., base	3.24c.
Steel plates, ¼ in. and heavier.....	3.34c.

Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger.....	3.25c.
(Smooth finish, 1 to 2½ x ¼ in. and larger) ..	3.50c.
Toe-calk, ½ x ¾ in. and larger.....	4.20c.
Cold-rolled strip, soft and quarter hard.....	7.00c.
Open-hearth spring steel.....	4.50c. to 7.00c.
Shafting and Screw Stock:	
Rounds	4.05c.
Square, flats and hex.	4.55c.
Standard tool steel, base price	15.00c.
Extra tool steel	18.00c.
Special tool steel	23.00c.
High-speed steel, 18 per cent tungsten.....	80c.

Sheets

No.	Blue Annealed	Per Lb.
No. 10		3.89c.
No. 12		3.94c.
No. 14		3.99c.
No. 16		4.09c.

Box Annealed—Black

Nos.	Soft Steel C. R., One Pass Per Lb.	Blued Stove Pipe Sheet Per Lb.
Nos. 18 to 20	4.30c. to 4.45c.
Nos. 22 and 24	4.45c. to 4.60c.	5.10c.
No. 26	4.50c. to 4.65c.	5.15c.
No. 28*	4.60c. to 4.75c.	5.25c.
No. 30	4.70c. to 4.95c.

Galvanized

No.	Per Lb.
No. 14	4.70c. to 4.85c.
No. 16	4.85c. to 5.00c.
Nos. 18 and 20	5.00c. to 5.15c.
Nos. 22 and 24	5.15c. to 5.30c.
No. 26	5.30c. to 5.45c.
No. 28*	5.60c. to 5.75c.
No. 30	6.10c. to 6.25c.

*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

Welded Pipe

Standard Steel		Wrought Iron	
Black	Galv.	Black	Galv.
½ in. Butt... —41	—24	½ in. Butt... —4	+19
¾ in. Butt... —46	—32	¾ in. Butt... —11	+9
1-3 in. Butt... —48	—34	1-1½ in. Butt... —14	+6
2½-6 in. Lap... —44	—30	2 in. Lap... —5	+14
7-8 in. Lap... —41	—11	2½-6 in. Lap... —9	+9
9-12 in. Lap... —34	—6	7-12 in. Lap... —3	+16

Bolts and Screws

Machine bolts, cut thread,	50 to 60 and 10 per cent off list
Carriage bolts, cut thread,	40 to 40, 10 and 10 per cent off list
Coach screws, 50 and 10 to 65 per cent off list	
Wood screws, flat head iron,	75, 20 and 10 per cent off list

Steel Wire

	BASE PRICE* ON NO. 9 GAGE AND COARSER	Per Lb.
Bright, basic	4.25c. to 4.50c.	
Annealed soft	4.50c. to 4.75c.	
Galvanized annealed	5.15c. to 5.40c.	
Coppered basic	5.15c. to 5.40c.	
Tinned soft Bessemer	6.15c. to 6.40c.	

*Regular extras for lighter gage.

On a number of items the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE, under the general heading of "Iron and Steel Markets" and "Non-Ferrous Metals."

Brass Sheet, Rod, Tube and Wire

BASE PRICE

High brass sheet	17¼c. to 18¼c.
High brass wire	17¼c. to 18¼c.
Brass rods	15 c. to 16 c.
Brass tube, brazed	25¼c. to 26¼c.
Brass tube, seamless.....	21½c. to 22½c.
Copper tube, seamless	22¼c. to 23¼c.

Copper Sheets

Sheet copper, hot rolled, 20% c. to 21¼c. per lb. base.
Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

Tin Plates

Bright Tin	Grade "AAA" Charcoal 14x20	Grade "A" Charcoal 14x20	Coke—14 x 20	Prime	Seconds
			80 lb..	\$6.15	\$5.90
			90 lb..	6.30	6.05
	IC.. \$11.25	\$8.85	100 lb..	6.45	6.20
	IX.. 12.85	10.85		IC.. 6.65	6.40
	IXX.. 14.40	12.55		IX.. 7.85	7.60
	IXXX.. 15.75	13.85		IXX.. 9.00	8.75
	IXXXX.. 17.00	15.05		IXXXX.. 10.35	10.10
				IXXXX.. 11.35	11.10

Terne Plates

	8 lb. coating, 14 x 20
100 lb.	\$7.00 to \$8.00
IC	7.25 to 8.25
IX	8.25 to 8.75
Fire door stock	9.00 to 10.00

Tin

Straits, pig	54c.
Bar	58c. to 63c.

Copper

Lake ingot	16 c.
Electrolytic	15½c.
Casting	14½c.

Spelter and Sheet Zinc

Western Spelter	7½c.
Sheet zinc, No. 9 base, casks.....	10.85c. open 11.60c.

Lead and Solder*

American pig lead	9c. to 9½c.
Bar lead	11c. to 12c.
Solder, ½ and ½ guaranteed	39 c.
No. 1 solder	36 c.
Refined solder	30½c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb.	75c. to 90c.
Commercial grade, per lb.	35c. to 50c.
Grade D, per lb.	25c. to 35c.

Antimony

Asiatic	13c. to 14c.
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Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb.	36c.
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Old Metals

The market is quiet and values move up and down following new metals. Dealers' buying prices are as follows:

	Cents Per Lb.
Copper, heavy crucible	11.25
Copper, heavy wire	10.75
Copper, light bottoms	9.00
Brass, heavy	6.50
Brass, light	5.25
Heavy machine composition	8.25
No. 1 yellow brass turnings	7.25
No. 1 red brass or composition turnings.....	7.75
Lead, heavy	7.00
Lead, tea	5.25
Zinc	3.75
Cast aluminum	16.00
Sheet aluminum	16.00